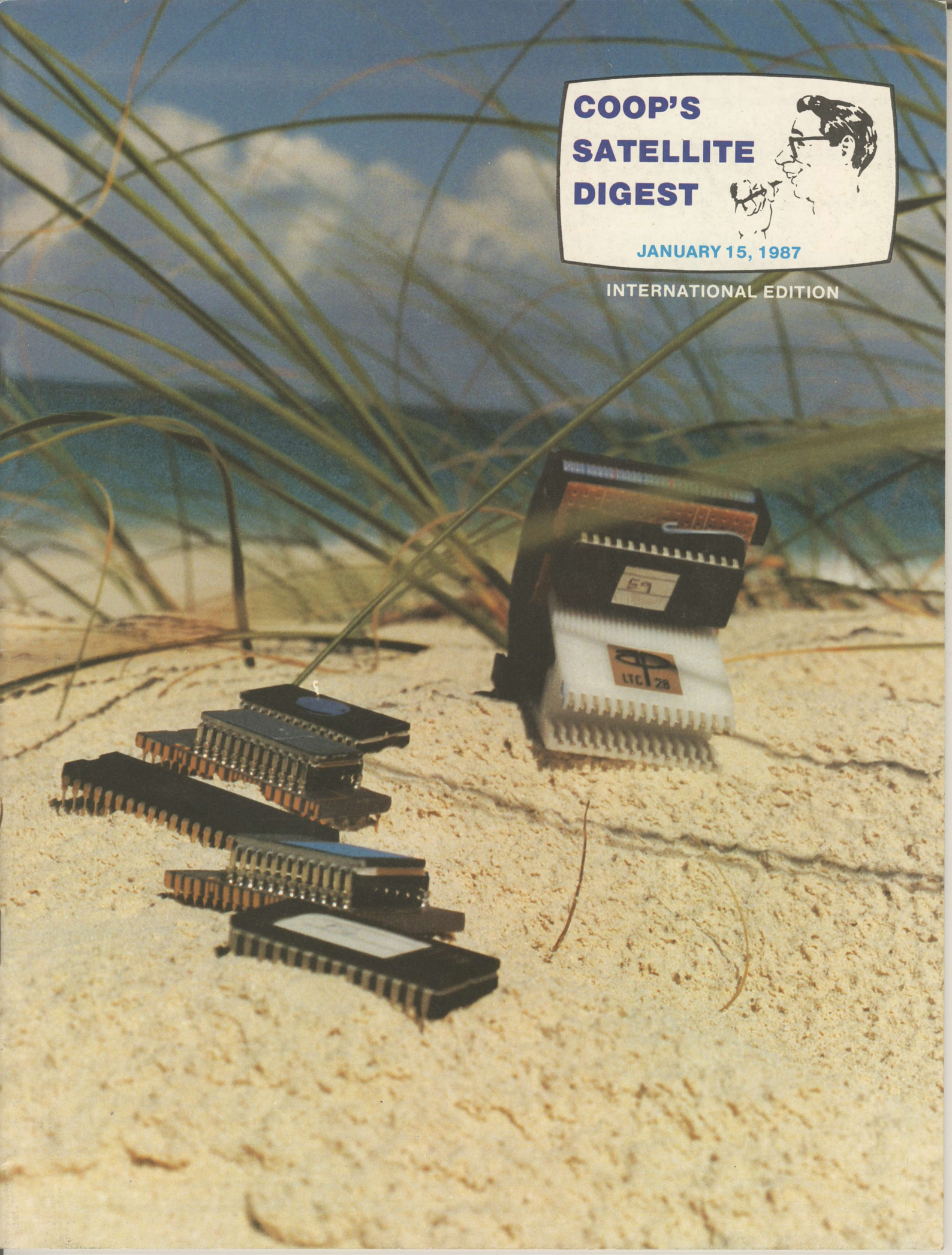
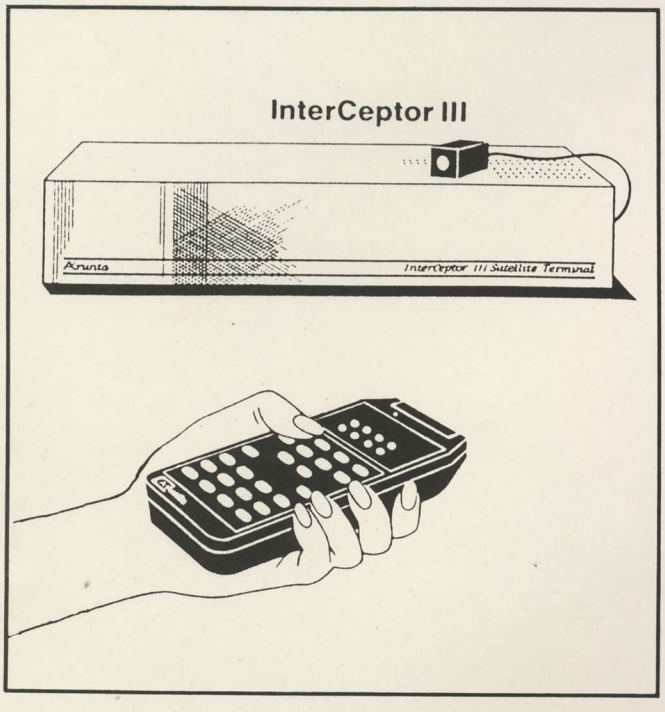

COOP'S
SATELLITE
DIGEST
JANUARY 15, 1987
INTERNATIONAL EDITION

Create a Complete Satellite System At Every TV

with Remote Sensors by Arunta Satellite



The "**World Class**" U.S.-made Interceptor III Satellite Terminal is a fully programmable C/Ku band Receiver, Stereo Processor and Actuator.

The Interceptor III's extensive list of features includes: "**Total Menu-Driven On-Screen Graphics**" allowing full system control from any TV set via a remote sensor. "**True Dual Band Performance,**" "**63 User Selectable Channels Per Satellite with 1000 Channel Memory**" for automatic selection of all C and Ku channels as well as all of the audio sub-carriers, "**Timed Programming**" for planning future viewing or taping, "**Parental Lockout,**" "**Video Bandwidth Adjustment,**" "**T.I. Filtering,**" and every function and feature of the system is controlled automatically from your armchair with an easy to use keypad.

Although the Interceptor was introduced in 1984, its unique plug-in upgrade design has kept it above the pack today, and will keep it that way tomorrow and the day after.

Arunta's U.S.-made Interceptor III is the only way to enjoy the total universe of satellite entertainment, and our remote sensors can provide it to every TV in your home.

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Satellite Telecommunications

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Phoenix, AZ 85060
(602) 956-7042
Telex #466323 (Arunta+)

TOP OF THE MONTH

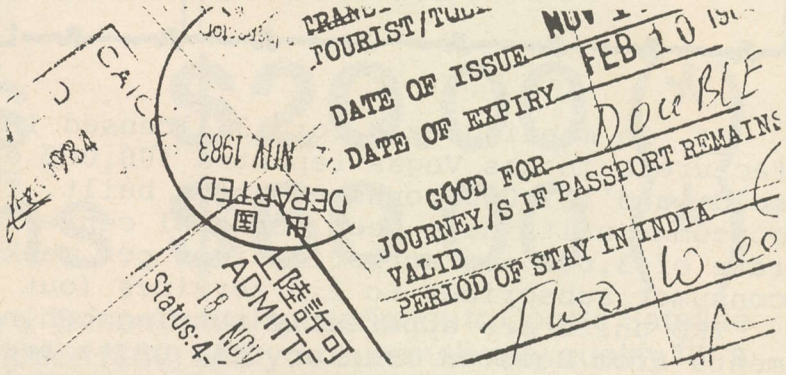
IN PAST years under Coop's stewardship the annual January issue has selected a man of the year, featuring that person on our front cover. Last year, under Triple-D Publications, that 'string' was broken. And this year, after considerable soul-searching, we could not focus on that one **single individual** who had made extensive positive contributions to the industry during the past year. Sorry.

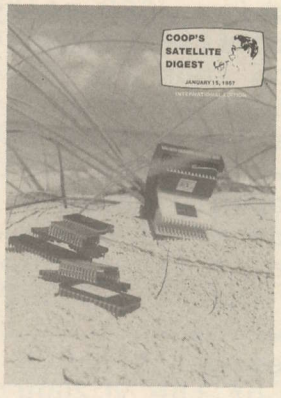
On a more positive note, as most of you read this, perhaps 300 individuals from the satellite industry should be gathering on the island of Providenciales in the Caribbean at our first **'Descrambling Summit'**. Those who could not make it will find reports on Boresight (Spacenet 1, transponder 9 as this is written but possibly changing soon) interesting.

This issue continues our look at the business opportunities in building a small cable TV system, our wrap-up report on the TVRO possibilities in Asia, and a 'warning that dealing off-shore to do business can be dangerous' to you and your health. If you have such aspirations, read the report over carefully, both above and between the lines.

Join us on February 15th in these pages for the fascination of busting Videocipher, and tune in the Caribbean Super Station on Westar 5, transponder 23 each Tuesday at 7PM eastern for our Provo Magazine!

January 15, 1987





OUR COVER/ A 'parade' of Videocipher busting descrambling chips lines up on the beach at Provo in anticipation of the January 14-22 'Descrambling Summit'.

COOP'S SATELLITE DIGEST

Volume 9/ Number 1

COOP'S SATELLITE DIGEST published on the 15th of each month, dated for the current month, by CSD, Limited, a Turks & Caicos corporation with corporate offices located at Tower Plaza, Providenciales, Turks & Caicos Islands, British West Indies. Under contract, an office is maintained in Fort Lauderdale, Fl. (**P.O. Box 100858, Fort Lauderdale, Fl. 33310; 305/771-0505**) for the contracted purpose of processing all subscriptions, advertising orders, receipt of all mail and correspondence. All communications relative to CSD operations should be directed to this office. CSD, Limited also maintains an equipment testing laboratory for satellite receiving systems and components in the Turks & Caicos Islands. CSD routinely reports on the technical performance of equipment, both privately and in print. CSD also participates in the operation of 'test tube' low power radio and television broadcasting stations and a rural area cable TV system as an ongoing research project into the challenge of bringing modern communication services to third-world, undeveloped regions. **CSD subscription rates** are $60 for 12 issues where U.S. zip codes apply, $65 in US funds in Canada and Mexico and $75 in US funds elsewhere. All non-US copies are sent via AIRmail. CSD has been published each month since October of 1979 and publisher Bob Cooper created the home TVRO industry in 1978. Single copies are $6 in US and $7 elsewhere. Bob Cooper, Jr. is publisher. CSD is copyrighted by CSD, Limited in the Turks and Caicos Islands and USA. **Second Class postage paid** at Ft. Lauderdale, Fl. Application to mail at second class postage rates is pending at Ft. Lauderdale, Fl. Direct dial telephone to CSD, Limited is 809/946-4273 but be warned; this is an expensive telephone call!

STOP-PRESS

Late News At Deadline

GI, in meeting held for 13 licensed IRD (module) receiver manufacturers in Las Vegas reported 100,000 cable VC2 units have been sold, and 157,000 consumer units built. They also reported 92,000 consumer units have been 'control center' authorized with a present rate of 3,000 new authorizations per week. GI reports the average consumer subscribes to 2.8 services (out of 8 operating).

IRD units are apparently running behind schedule despite statements from Houston Tracker that units are already available. GI says 21,000 IRD 'modules' have been completed for delivery to IRD receivers but few have apparently been delivered to date.

GI says 'Clones' are temporary, that they do have a software fix; they also claim the Musketeer chips are vulnerable to an uplink directed 'software fix'. GI also boasts that they are working with the US Customs service to shut off shipments outside of the USA; with the US State Department to locate and 'deal with' units already outside of the US, with the US Copyright office to catch those who have 'copied' (pirated) M/A-Com (GI) 'chip software' to make Clone or Musketeer chips. CSD talked with US Customs officials in South Florida and could find no Customs personnel who had any instructions telling them to look for Videocipher units headed out of the USA. We then surveyed ships being loaded to the Bahamas and quickly found three pallets (96 units) filled with VC2000s being openly shipped to a well known Bahamas distributor. In another survey, we found 50 units being openly shipped to the Cayman Islands.

INTERNAL sources inside of GI claim LSI (large scale integration) version of VC2000 will be in 'production model' in time to show at Las Vegas SBCA/STTI show (March 2-4). Pricing will not be lower, as hoped, than VC2000 because of what GI claims is high cost of 'internal security' with LSI design. M/A-COM had originally planned to produce at least 500,000 of the VC2000 units before switching to the LSI design approach. Most agree the LSI design will be far more difficult to 'crack' than the stand-alone present version.

VC2100 is soon to be released infra-red control model of VC2000, with pair of EPROM chips inside to provide increased 'computing power'. Suggested list price will be $495.

SATELLITE Broadcast Nets, Inc. plans to begin scrambling on 'or about' March 1st using Videocipher for F2R feeds of ABC (WABC, NYC, TR23), NBC (WXIA Atlanta, TR11) and CBS (WBBM, Chicago, TR3). They are offering 13 months for price of 12 ($49.95) on charter basis and require check or money order (280 Madison Av.,Suite 608, NY, NY 10016; 212/725-1132).

COMTEK (Ltd.) (P.O. Box N1081, Bayview House, Nassau, Bahamas; 800/648-6699) reportedly ready to offer Musketeer chips consumer direct with unique service-guarantee plan (no dealer orders).

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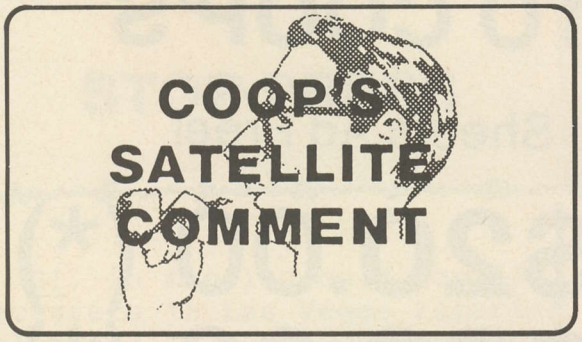


• GI's COME-BACK

-Editorial Comment from Bob Cooper-

WHAT PEOPLE Are Saying ... We Said

Broadcasting Magazine, the trade-bible for the television and radio broadcasting industries, carried a report in a recent issue on the first public meeting of the newly created SBCA. You may recall that when SPACE ran into financial hard times, it merged with another trade association called DBSA and in that marriage both sides dropped their premarital names in favor of SBCA (Satellite Broadcasting and Communications Association).

DBSA was originally formed to promote 'direct broadcast satellite service', at Ku band. That was some several years ago when there was great enthusiasm for the creation of 200 watt per transponder direct-to-home service. This group believed that with high power and small dishes (18-24" in size), they would penetrate up to 20,000,000 non-cabled homes in America. They planned to offer those homes essentially the same services or type of services which C band satellites now offer, or your basic cable TV services. However, they planned to do this in a 'controlled environment', with a maximum of perhaps 16 channels of service from a single bird or cluster of birds. Naturally the transmissions were to be scrambled.

While SPACE was running from debt, DBSA was running from a lack of interest. After the initial enthusiasm, many of the well heeled and capable early proponents of DBS (such as COMSAT) had dropped out leaving direct broadcast satellite TV with a motley collection of would-be entrepreneurs. Supporting these non-monied entrants on the fringes were those firms that have the most to gain from direct broadcast satellites; RCA and Hughes who build satellites, for example.

For SPACE, the merger occurred at the 11th hour. **Chairman Taylor Howard** perhaps knew that if he waited too long to pull off the marriage, there would be no SPACE remaining. In spite of optimistic statements from the SPACE hired help, there was not much chance that a trade association unable to meet its monthly overhead with operating revenues was going to reduce a debt that started off the year in the healthy six figure range.

For DBSA, the merger was also in the 11th hour. Ku band DBS was a little talked about, probably stillborn technology. The FCC was already entertaining proposals to allow early DBS operators to sell or lease off transponders for purposes totally unrelated to DBS (such a s teleconferencing, data networks et al) and the original proposals for 240 watt per transponder birds were being scaled back to the 100 or even 50 watt range. **Perhaps** between the two industries there would be a rebirth of some new, yet undiscovered commercial activity.

In the end, although SPACE had promised it would enter the marriage 'debt free', DBSA would somehow waive that stipulation and the two associations would get hitched inclusive of SPACE's debt. The merger took on the theatrics of a 'shotgun wedding' only it was impossible to tell which side had the shotgun. Perhaps both.

Taylor Howard, the architect of the marriage, ends up as Chairman of SBCA. There is an unusual 'past Chairman' post and that is held by RCA's **John Clark**. Other high ranking positions go to people from Ted Turner's TBS, Hughes and so on. The Board of Directors contain just a few familiar-to-TVRO names plus people from COMSAT, United States Satellite Broadcasting, General Instrument, Showtime, HBO and CBN.

Andrew Hospodor, president of RCA Americom and not directly involved on the board with SBCA, participated in a panel discussion at the association's first public meeting. He offered that 'all programmers should begin their move to Ku band now' and then explained 'by 1995, the last of the presently operating C band satellites will have been retired from service'. According to Hospodor we might awaken in 1995 and find 'no C band satellites still operating, since those now operating and scheduled to run-out of service are not scheduled for replacement'.

That of course sounds just a tad farfetched. It reminds me of the fellow from HBO who did the home dish industry such a service when he announced on national television last January "The skies will go dark as all of the satellite services scramble". As we all recall, that started a run on the bank and in short order although the skies had not gone dark, thousands of TVRO dealerships had gone dark. Now we have RCA telling us, and the world press, 'by 1995 there will be no operational C band satellites remaining'. If you thought the treat of scrambling put a crimp in your sales, consider the threat of 'no operational **satellites** at C band'. **Thank you, Mr. Hospodor.**

Taylor Howard speaking at the same gathering noted "The home dish marketplace is not working right now; dish owners are unable to purchase scrambled cable programming at economical rates. The industry needs

third party program distribution". Broadcasting's reporter allowed some of his editorial bias to slip into his report on Taylor's remarks by penning "Taylor Howard still sounded as though he was Chairman of SPACE, not SBCA".

An old name you will recognize in the new SBCA is Charlie Ergen of Echosphere. Ergen predicted "Ku band satellite broadcasting is not only inevitable, but it will eventually displace cable". Charlie suggested that one day every home in America would have a satellite dish; a Ku band dish. Ergen owns a piece of a company that plans to launch a **Ku band** DBS satellite.

SBCA, to amount to something other than a play toy for the very rich and very powerful communication corporations, has to find some ground it can call its own and then drive in a few stakes. **Chuck Hewitt**, who progressed from a VP of SPACE to a President of SBCA in the marriage, told Broadcasting that there will be four separate 'subgroups' within SBCA and each will be holding meetings during January to decide what ground they wish to stake out. 'Then', Hewitt promised, 'the consensus will be made public at the SBCA spring convention, in Las Vegas, February 28 to March 1'. Perhaps Broadcasting erred, perhaps not; but those seem like **new dates** for the Las Vegas gathering of **'this' industry**. Or perhaps it is not a gathering of 'this industry' at all. Perhaps it is a gathering of some new, foreign industry?

The new SBCA board has representatives from DX, Luxor, a pair of 'token' dish dealers plus Ergen and Howard. You would recognize no other names unless you happen to be a student of cable and broadcasting and satellite manufacturing. For sheer 'voting power' those who have long term interests other than supporting a healthy C band industry far outnumber those who think C band is still a viable communications system.

At the very least, this is all very sobering.

WHERE The Talent Has Gone

I am both amused and saddened to review a mental check list of those talented engineers and equipment creators who were as recently as one year ago providing innovation and excitement to the home dish industry. That's the **C-band** industry. It may surprise you to learn that only a few remain involved in our industry and almost of all of the remaining are involved now in the 'descrambling underground' looking for ways to beat Videocipher and B-MAC. I suppose that says something about challenges and rewards.

When M/A-Com, arrogantly, announced to the world that Videocipher 'cannot be broken', they tossed down a gauntlet. The response was immediate and within days the same talented people who are designing microprocessor controlled satellite receivers were trying to reverse-engineer VIdeocipher. But the challenge was so great and the potential rewards so significant that the 'M/A-Com challenge' also attracted supertalents from outside of TVRO. Engineers from leading aerospace companies and even communication giants such as Bell Labs joined 'the fun' looking for holes in the Videocipher system. M/A-Com variously claimed

COOP/ Continued on page 25

THE DANGERS Of Working

BEWARE OF FOREIGN ASSIGNMENTS

There are TVRO people reading this report, our sixth and concluding part in a series dealing with TVRO 'overseas' (ie. the Pacific), who are ready to pack up their bags and wander off to some more inviting dish marketplace. Doubtless, the combination of cold winter snows, icy streets and the knowledge that it is not snowing nor icing in the Caribbean, South America or the Pacific is adding to your wanderlust. Curtail the urge until you read this report.

American citizens believe that you can do your thing almost anyplace. We get this image of the world because we cross state lines or into Canada or Mexico with no hassle from anyone. We 'know' India is different than America, for example, but cannot appreciate how great those differences actually are until we have been to some far away and totally different 'civilization'. The world is not created in the American nor Canadian image and there are many precautions one must take before striking out to restart life.

Yes, the American and Canadian TVRO world **is a shambles**. We know, some of the so-called 'dealer magazines' in this field are trying to convince you that the industry is coming back to life again. They say that primarily because they believe if one repeats the story often enough, it will come true. So the combination of the reality of the TVRO shamble and the miserable winter conditions have you ready to pack up and shove off. But where, and how?

The assumption is that the 'TVRO good life' did not last long enough to set you up for life; that you must continue to work and if the US and Canadian market is not well enough to support you anymore, you are willing to take a **chance** on restarting someplace else. If you live in Nebraska, moving to Florida is not the answer. It may be warmer there, but there is no more TVRO work in Florida than there is in Nebraska. Perhaps even less. So you know you will have to go further. And work.

The 'and work' is the most difficult part of all. Believe it or not, most countries of the world do not want you .... to come there **to work**. They welcome you as a tourist, they welcome your US dollars. They do not welcome your expertise nor your tool box nor your desire to 'settle' and become a part of their local work force. At least not without some hassle.

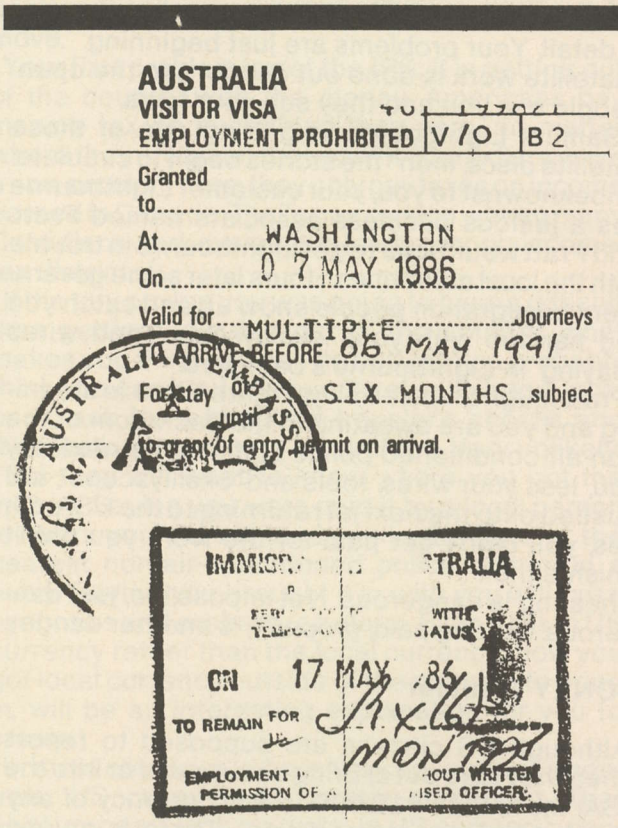
Australia is one example; an 'english speaking', essentially white, upscale nation of some 16,000,000 or so spread over a continental area larger than the USA. The Australians want to know about you **before** you get there; you are advised not to hop a plane in Los Angeles for Sydney unless you have first gone through an Australian consulate or embassy to obtain something called a 'Visitor Visa'. And after waiting for a week to ten days for the visa to be granted, the first thing you should notice on it is that printed in red ink it says 'EMPLOYMENT PROHIBITED'. There is additional fine print in the application you signed to obtain the visa. For example, you have to promise not to get sick and then attempt to use their national health care while you are 'visiting. You also have to prove that you have a round trip ticket; that you will not get there and then plead the financial inability to leave again. Surprised? Read on.

New Zealand is no better. Right there on the passport stamp it clearly states 'EMPLOYMENT PROHIBITED'. Actually, you can enter New Zealand, from Australia for example, and avoid a stack of paperwork in front. The New Zealanders cleverly figure that if Australia is going to screen their visitors, there is no need for New Zealand to do the same thing. So they ride on the coattails of the Australian screening process. But the passport stamp still says it all; **'Employment Prohibited'**.

The Turks and Caicos Islands is no exception. The passport stamp reads 'Holder must not engage in gainful employment'. That means "don't come here and look for a job" or try to make money. If you do, without being processed as a worker in front, 'out you go'.

Japan has similar restrictions. So does the UK ('Employment Prohibited'). The list is virtually endless. Does that seem unfair? Guess what; the US has a similar restriction. To work in the US, you are required to obtain a special permit (called a 'Green Card') if you are a foreign national. Maybe these countries are not so unfair after all. Perhaps they are simply handing back to US citizens what the US hands to their citizens.

What is employment? Each country has its own definition and if you plan some escapade that you think is terribly clever skirting the edge of the law,



AUSTRALIAN VISA clearly reminds you, in red printing, that you cannot 'work' while visiting there. The application form you sign to obtain the VISA is even more specific and includes your agreement not to seek health-care from the government as well.

you are well advised to check with the appropriate embassy or consulate. It will be far less hassle for you than going to some far away place and trying your scam only to learn after getting there that they have a jail filled with people who had the same scam in mind.

Now, actually, most countries do not really **prohibit** you working there and most do not want to deny you the opportunity to work. Provided. Provided what?

1) That your work or job cannot be done by a local person who, by your presence, will be out of a job because they let you in to do the same work.

This should rightfully suggest that if you have **special skills** that are not available (or in abundance) in your intended work place, that there are ways to get permission to work there. It may take a week, a month or even a year to get all of the paperwork in line. But there are procedures that will allow you to work if you can convince the authorities of their need for your skills.

2) That your work or job is only temporary, that you are coming in with your tools to back up the installation of some special piece of equipment which somebody in their country has purchased and for which there are special skills required.

Temporary work permits, usually for a specified period of time and often associated with a specific job, are available with typically far less red tape than a 'permanent work permit'.

Most work permits, even the 'permanent' types, are granted on an annual basis. That means January 1 through December 31st. To stay, and continue working, you must resubmit and obtain a new annual permit. They do this to keep tabs on you, to insure that there is no change in the availability of local skills in that year's time, and, to extract a new fee from you. No, work permits are seldom granted gratis. They ask for often sizeable fees and the fees are based upon the type of work you do. Lawyers and doctors, for example, often pay big-big bucks to work in a foreign country. A ditch digger would pay far less.

3) That your work does not involve the importation of unreasonably large quantities of tools and supplies. There is a fear that under the guise of coming in to engage in some form of labor you are actually bringing in a load of tools and equipment which once inside, you will sell. They don't want you to confuse working as a **trades**man with working as a **sales**man.

Tools, test equipment and the like brought into a country to support a work assignment must be clearly identified so they can be assured that as you leave, the same tools and supplies go back out with you. Not that they would not love to have and retain what you brought in; simply that many specialty items (such as a portable video monitor) may command import duties in the 50-100 percent range. They don't want to miss an opportunity to collect those duties from you and bringing in 'equipment for work' should not be confused with bringing in 'equipment for sale'. You may have to submit to an inventory process, or even post a bond against the payment of import duties in some countries. Oh yes, the longer you are there and the longer they have your 'bond' money, the smaller and smaller your chances will be of getting it back. That's the way it works.

CHEATING

White collar workers, such as computer engineers, can now slide into and out of countries with nothing larger than a briefcase and still conduct thousands or even millions of dollars in business. Most countries require that you fill out an 'entry form' before you go through immigration and then custom control points. On the form, you are asked the 'purpose' of your visit. Some provide check off

choices: ___ Vacation ___ Business ___ Visiting Relatives, and so on. Checking off ___ Business is red flag.

"**Do you have a work permit**" comes the next question.

"How will you be paid, and by whom" follows. Depending upon your answers, you may be standing (or sitting) around quite awhile explaining what your 'business' is all about.

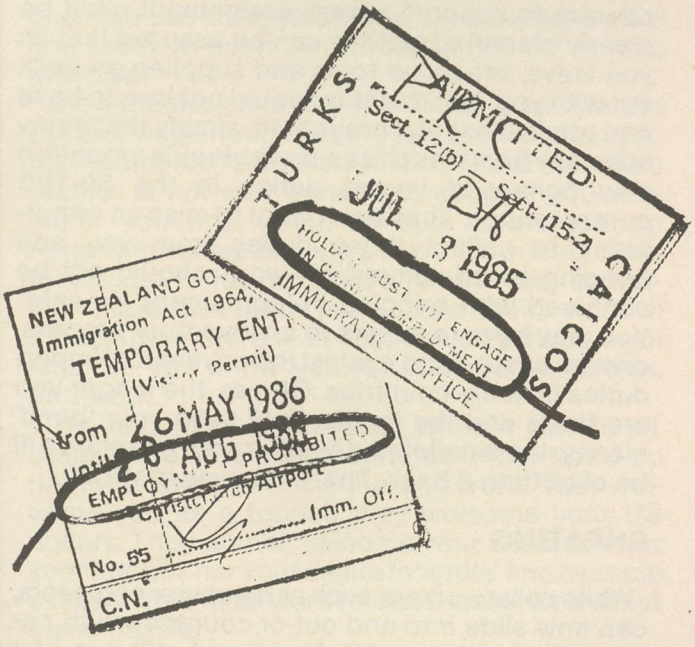
Improperly completing your immigration form and not being asked about work may get you past the immigration control people. It will not get you past the customs people dragging two 70 pound steamer chests loaded with hand tools and test equipment.

"**Do you always carry that 'oksillyscope' thing with you on vacation?**" asks the customs agent. **Quick**, what is your answer???

"All of these wires and this soldering tool, are you bringing them here to sell?". **Double quick**... your answer. Admitting that you did not bring them to sell pushes you to level-two questioning.

"**Then you have these here to work?**". Before you answer, remember how you filled out your immigration card; 'Vacation'.

Getting past the immigration and customs control point may be, by dumb luck, a piece of cake.



EMPLOYMENT PROHIBITED/ this appears on many immigration stamps as you travel the world although it may not always be in English. It means "don't try to work while you are here, UNLESS you have obtained the proper authorization".

After all, not **every** country checks **every** passenger in detail. Your problems are just beginning.

Satellite work is done out of doors, in the open. People see you and they see your tools.

"Samuel Lightbourne is getting one of those satellite discs, mon" the stories begin to circulate. Unbeknownst to you, your customer Lightbourne has a jealous business associate named Pratt. And Pratt would love to get Lightbourne in trouble with the local authorities. Hours later some government immigration people show up and catch you red handed with your 'oksillyscope' and wires 'playing' in Lightbourne's backyard.

Pratt laughs himself silly, Lightbourne is steaming and you are sweating in the backroom of the non-air-conditioned police station. The next day you, less your wires, tools and 'oksillyscope', are hustled onto the next jet returning to the USA. Oh yes, you didn't get paid for the work you didn't finish either.

Cheating is dangerous. Not impossible, just dangerous. Getting paid, properly, is another danger.

MONEY Transfer

Although US citizens are supposed to report when they take out or bring back (out of or into the USA) more than $10,000 in any currency of any negotiable form many do not. There is no law **against** hauling money in nor out; there **is** a law against doing **without reporting it**.

Other countries are not so friendly. Many countries have currency controls. It is illegal to haul out more than $250, for example, from countries such as the Dominican Republic. You can't even buy a VC2000 with that little bit of money. To ship or carry more money out than is allowed by the local laws, anyone doing this must have government permission. That can be quick, or it can be impossible. This causes people living in such countries to develop very clever, not straight forward and seldom locally-legal techniques for moving money. US currency, the commodity that all nations of the world respect and crave, is especially difficult to move out. Getting it **in** is a snap!

Credit cards are a partial answer, in some countries. Australians traveling abroad charge everything on their American Express cards. They get the benefits of foreign travel and currency use by doing it all on a card they got back home. They pay their bill in Australian currency at an Australian collection depot and then AMX figures out how to get that money back to their bank in New York or Los Angeles.

If you find yourself planning to do business in some foreign country, you may be tempted to ask for payment in local or US currency **in that country**. You figure there will be no record of the payment and you can decide later on whether to

declare that income on you IRS report. Foolish move.

Your first problem is not the IRS; it is getting out of the country with the money. Americans pay income tax on everything they earn, no matter where they are when they earn it. (Canadians have a non-problem here; they only pay taxes on income earned in Canada. That's one reason why so many Canadians work overseas in low tax or non-income-tax districts.)

If the guy paying you was going to have a difficult time getting your fee out of the country, what makes you think you can do better? You probably think you can haul this bundle of cash into a local bank, ask for a bunch of traveler's checks and then walk out and onto an airplane. Very unlikely. First they will want to know where you got the money. Saying you were paid it by a local person for work you did will land you in the back of the nearest non-air-conditioned police station in a hurry. Saying you brought it in with you will raise eyebrows and probably an alarm. Even if it is in US currency rather than the local currency (how you got local currency outside of the country, to bring in, will be an interesting explanation for you to create.)

In most countries, where they are currency controls, US currency is closely monitored. That encourages 'black markets' in US currency; people who buy and sell it, for an inflated (non-exchange rate) amount. If your local customer has to pay 120% for every dollar in US currency because he cannot exchange for the required amount at the bank (because of currency controls), his price for having you there to work just went up 20%. He probably won't like that.

Hauling around a suitcase filled with any currency in most foreign countries is a risky business. Sitting on $10,000 in US currency in Port-Au-Prince, Haiti where the average annual income is $135 (US) certainly is an open invitation to have your bag snatched, your body snatched, or both of the above. And don't expect much help from the police in this situation; **they** are the ones who earn $135 a year!

IS IT Worth It?

Sure, you have certain professional skills which are in demand. They are more in demand in those corners of the world where TV or satellite TV has not yet reached than they are in Indianapolis. You **could** make some big bucks for a few days, weeks or a month's worth of work. You might even enjoy the change in climate, the white and sandy beaches (avoid Tahiti of course) and the unusual foods and language(s). Just be prepared.

Be prepared for:

1) **A different value system**. Everything you know and expect as routine will be different; right down to the relative value placed on human comfort/misery. You may find sitting in solitary in a 4 by 4 windowless 'cell' miserable. The guard outside might not agree; at least you are not outside in the rain. He thinks you are not suffering.
2) **A different currency system**. US dollars are much desired. Almost all foreign currencies are devalued in comparison. You are an American, or Canadian, and you obviously have the 'yankee dollar' available to you. You will be wined, dined, romanced ... and then possibly robbed. Unless you are very careful about how you conduct yourself and what you do with any money you may have with you, or 'pick up' on your trip.
3) **Your work skills** are only important until you have completed the job. If your employer has no further need for your skills, after you get the job completed, your value just dropped immensely. He probably broke several local laws getting you there and putting you to work. When your work is completed, he wants you gone, out of there, in a hurry. Don't expect the buddy-buddy relationship that permeated the job up to the point where you get pictures to continue. If it does, that probably means he has more work planned for you.
4) **You will need help** with the physical stuff. Anyone your employer provides is there to help, and to learn. If it costs him $5,000 in US bucks to get you there, he is already figuring out how to save that $5,000 the next time around. Having a bright, local person help you to learn the 'tricks' is a good plan. It also should tell you that there will no be a 'next time' for you.
5) **Your tools**, that 'oksillyscope' for example, that you lovingly carried through immigration and customs fabricating stories about may get left behind. It may get 'lost' and you may not be able to **find** it. You may be faced with leaving without it; build that into your fee structure up front. If you posted a customs bond for it, you may lose that bond. Plan ahead.
6) **Sending or carrying money out** of the country, after being paid, is a danger; no matter what. Wire transferring of the funds by going to the bank locally will produce a string of questions in a language you may not be fluent in. Carrying cash back into the United States is OK but declare it if you have more than the specified amount ($10,000). Hey, consider it a privilege and a pleasure to report it and pay the appropriate taxes on your earnings; a 'reward' for being an American and having all of those Americans values in place to protect you from getting the bad end of a deal you will face elsewhere in this big, old world!

This doubtless reads as if you are well advised to stay home and face the cold winter and deteriorating TVRO business with a smile. Not necessarily. We have chosen the worst examples we could find of the dangers involved in hopping a plane for Bombay. Well, maybe not the worst in the case of Bombay, but close never the less.

'Going overseas' sounds fun, glamorous, and exciting. It may well turn out to be all of those things, and more. But it is not like catching a plane to Chicago or the bus to Las Vegas. Simply be prepared, do your homework, and don't expect to find a McDonalds on every corner, and you will be just fine!

BARGAINS/TWO

GETTING RICH WITH CABLE TV (Part 6)

In our last portion of this series we explored the various categories of equipment found in a cable TV system and began studying the all important 'frequency/bandwidth' decision for a new cable system. We learned that through the years there has been a continuing upgrading of cable system 'bandwidth' with the first systems in the early 1950s occupying the low band channels (2-6) while modern systems occupy 450 megahertz of space.

As system bandwidth has grown, there has been an active market in 'lesser bandwidth' equipment (ie. older style equipment offering less bandwidth than the current crop). Now, what sort of decision making process must you go through when selecting equipment from the 'used cable market'?

Channels. Ultimately, you are making a channel-decision; **how many channels** of service will you offer to your subscribers, and, how much channel-growth do you anticipate over time?

In the history of cable, there were two eras during which a considerable quantity of equipment was produced; setting aside the current run of equipment. These were the 12 channel systems and the 20 channel systems. Both eras processed TV signals between 54 and 216 MHz and the 12 channel systems utilized the standard 12 VHF channels while the 20 channel systems used the same 12 VHF channels plus 8 (9) additional channels between 120 and 174 MHz (the so-called 'Mid Band' channels).

The 12 channel solid state equipment had a run of approximately 7 years while the 20 channel equipment was available another 7 to 8 years. The time frames are respectively 1960-1967 and 1966 through 1973 or so. That means the equipment could be as much as 20 years old, or as little as 13 years old. After the '20 channel era' equipment options divided into many different directions and different brands of gear offered varying degrees of bandwidth and channel loading capacity.

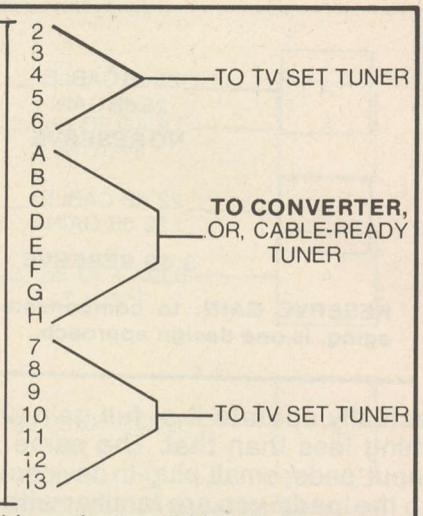
Jerrold (now GI), TOCOM, Kaiser, Blonder Tongue (BT), C-COR, and others produced equipment in this era in volume. The 'best' designs came from Jerrold and Kaiser but Jerrold had perhaps 60% of the market during both the 12 and 20 channel periods so you will find more of the Jerrold (ie. Starline 20) equipment out there than the others.

The Jerrold 12 channel solid state equipment can be modified (upgraded) to 20 channel operation with relative ease while the Jerrold Starline 20 equipment can be upgraded to 27 or 32 channel operation for not big bucks. Now, how many channels do you **really** need?

The larger the cable community, the greater the number of channels usually offered. Cable systems offering nearly 100 channels were seriously designed in the late 70's and early 80's. Fortunately, few were actually built offering this tremendous number of service channels. Some plants were built by creating two separate systems side by side; two complete cable systems running parallel to one another on the same poles with each one offering 32 channels (for example) and customers were provided with an 'A/B' switch to select 1-32 from cable 'A' and 1-32 from cable 'B'. This sort of foolishness typified a period in cable's growth where the cable operator allowed himself to be talked into building systems which far exceeded the customer need for different programming services. Today it is possible to have 64 (or more) channels in a **single** cable by utilizing the spectrum between 54 and 450 MHz (or even higher)

And you?

In our November issue we looked at a paper 'model' system offering only 12 channels. Included in those 12 channels was one each of the major networks, a couple of satellite delivered 'indie'



WHEN YOU cable-activate mid-band channels, subscribers must view through external mid-band tuner/converter or on cable-ready TV set.

signals, several of the speciality services (via satellite) and a pair of optional, premium services. We saw, in November, that while such a small system offered limited instant-cash rewards, it could over 15 years create more than $200,000 in cash flow for you after paying off its bank debt; all of this with fewer than 200 cable subscribers.

The number of channels you **should offer** must take into account the number of channels which are available to the potential customers, with**out** cable. If the number is small (ie. 3 or less), you may well be able to get along just fine in the marketplace with a 12 channel system. Certainly a 12 channel cable system is the least expensive you can build today.

However, the future is unknown and the history of cable has shown us that as cable matures there become more and more customer-desirable services available. There is one more consideration; the resale value of the cable system at some point in the future.

We suggested a '15 year business plan' in our November treatment of cash flow and financing. If you started on your project in 1987, 15 years later is 2002. There is nothing 'magic' about 2002 but it does point up that 15 years is a relatively long time. Wouldn't it be better to opt for a **20 channel** capable system even if you only see an **immediate need** for 12 channels?

Remember that your cable amplifiers are 'spaced' in the cable plant and along the cable trunk and feeder lines based upon the maximum upper frequency in use. It happens that a 12 channel plant has a maximum upper frequency of 216 MHz and a 20 channel plant **also has** the same maximum upper frequency. In other words, you would build the plant with the same amplifier spacing(s) whether it was 12 or 20 channels.

Also remember that your cable customers are already equipped with a 12 channel TV receiver; they may not have 'cable ready' TV sets which allow them to tune-in the mid-band channels (A-H). Therefore, if you elect to activate those mid-band channels, you will have a new capital investment to consider; mid-band converters for each customer.

When the first mid-band systems were put into operation, cable ready TV sets did not exist. The only way a customer could tune-in these extra channels was to be equipped with some sort of **converter**. Millions of these converters, designed for mid-band plus VHF (only) were built and today they can be bought in small quantities such as 100 units at a time for $10 or less each. No, they are not exactly 'state of the art' but for your plant they may be ideal. The cable operators of the mid-band expansion era typically placed their premium channels in the mid-band region since this gave them a way to control who got the mid-band channels (through the allocation of mid-band converters). This security system lasted a year or two; soon **Radio Shack** and others were offering mid-band converters to consumers and the security of the premium channels was violated. In later years, cable firms would adopt 'scrambling techniques' for their premium service channels. And that increased their operational costs again since now they had to capitalize the headend scrambler as well as the descrambler **unit** for **each customer subscribing** to the premium services. There were other technical solutions to mid-band addition, but they all cost money.

Today, cable ready TV sets are the norm and very few VHF/(UHF) only sets are sold except at the very low end pricing levels. It is now possible to transfer to the customer the 'cost' of receiving the additional channels. As older style receivers continue to be replaced with newer cable-ready sets, this 'problem' will eventually disappear.

Now, if you opt to purchase brand new equipment rather than rebuilding older style electronics, you will find you have a wide set of options in bandwidth, even today. And the pricing for the cable amplifiers will be bandwidth sensitive, even when purchasing new equipment. The pricing is not as dramatic at the new level, but there are savings none the less. More important that the savings for 54-245 MHz amplifiers (26 channels) versus 54-300 MHz (35 channels) is the amplifier **spacing**; when you space your amplifiers for 245 MHz top end, you are further apart on the cable than if the system was spaced for 300 MHz. This can cause you to use several more amplifiers (at relatively big bucks) to cover the cable community. So will you one day REALLY need 35 channels? The decision is important, and

has a direct effect on your initial capital outlay.

AMPLIFIER Depth

There are other considerations to amplifier selection. Amplifier 'depth' is one of those.

Picture the cable plant; you start out at the headend and start stringing cable. Your amplifiers fall where cable loss dictates and you just keep stringing cable and inserting amplifiers. This cannot be kept up indefinitely. There are practical limits regarding the number of times you can amplify the signals. Each amplifier contributes a (minute) amount of 'noise' as it amplifies. So in a 'series' (cascade) of amplifiers we have noise buildup. Ultimately, this noise will degrade the pictures noticeably (although the process is slow).

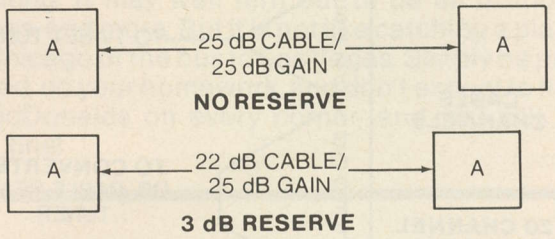
Something else is happening as you add amplifiers in 'cascade'. Remember that the very early amplifiers for 12 channels were 'single ended'; that is, they handled 12 channels OK but generated new 'amplifier signal products' which fell in the 'mid-band' channel region. These amplifier products are variously called 'inner mod' and 'third order products'. All amplifiers have this sort of unwanted signal creation but the single ended amplifiers have it far worse than the double ended amplifiers. Each time the desired signals pass through an amplifier (regardless of amplifier design) there is an increase in these undesired products. Eventually, as you keep sticking amplifiers in series/cascade, these undesired products become strong enough that they begin to interfere with the desired signals.

All of this has to be taken into consideration when you are selecting equipment and designing a cable plant (on paper). Fortunately, the manufacturers of amplifiers have carefully calculated and then tested their products and they can tell you up front whether you can 'cascade' 20 or 40 or 64 whatever number of their amplifiers before you have noise, and/or undesired product problems.

Our assumption in this series is that you will be building relatively small cable plants. We'll suggest that you probably will not be more than '30 amplifiers deep' in a plant being built following this article series. Most of the newer amplifiers have no difficulty attaining a depth of 30 (32) amplifiers but you should always **ask about this limitation** before you select any amplifier for your system.

Cable amplifiers are 'rated' at maximum cascade (ie. greatest number of amplifiers permitted in a line) based upon the amplifiers being operated in various modes. **Gain** is one of the parameters. All (trunk) line amplifiers have a gain control, a small adjustment which varies the gain of the amplifier over some range of 3 to 6 dB. In other words, if the amplifier is rated at 25 dB of gain (dBg), you can actually operate it at full gain (25 dB) or something less than that. The same amplifiers have input 'pads'; small, plug-in devices which are similar to the 'pads' you are familiar with in TVRO. These pads allow you to adjust for 'short spacing' between amplifiers. If your system requires that the amplifiers be spaced exactly 25 dB apart and each amplifier has 25 dB of gain, then you would operate the amplifier(s) with a '0 dB pads' (no input attenuation) and with the gain control turned up full. However, this leaves you nothing in 'reserve' for inevitable aging of passive and active components. If 1 or 2 dB of additional loss pops up on that line, you will have no reserve gain to compensate for that loss. It makes more sense to build the system so that you have at least 3 dB 'reserve' at each amplifier station. Some designers put in 6 dB of reserve; 3 dB in the form of an input pad and 3 dB in the forms of adjusting the output gain control to a -3 dB from maximum gain point. We'll look at all of this in greater detail in a future installment; for now, be aware that two things happen when you space amplifiers precisely at the maximum gain capabilities of the amplifiers:

1) You have no reserve, and,
2) By operating the amplifiers at maximum rated gain, you are asking the amplifiers to increase their noise and undesired product content faster.

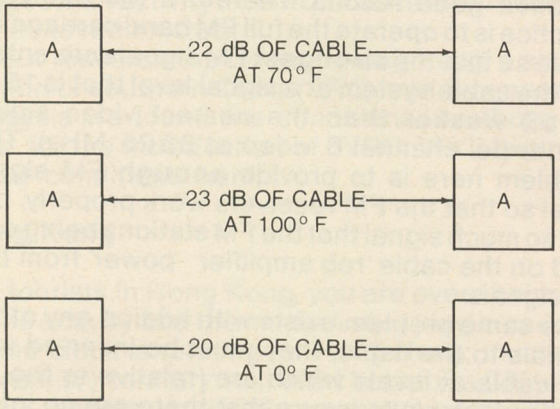


RESERVE GAIN, to compensate for equipment aging, is one design approach.

AMPLIFIER Levels

The signals leave the headend in a 'voltage stable' mode; that is, the signals are of constant output level. On the surface level, you might expect that they will stay in a 'stable mode' unless there is a loose cable fitting or some other mechanical problem in the cable plant. Unfortunately, that is not the case.

The transmission medium is cable and the cable hangs out there on utility poles getting warmer in the daytime and colder at night. **Cable 'loss'** or attenuation **is a function of cable temperature**; when cable gets warmer, the loss per foot (100 feet, etc.) increases. Loss goes down when the



CABLE LOSS VARIES with physical temperature. Some method of compensating for varying cable losses is necessary.

cable gets cold. Recall that you have designed the cable plant so that your amplifiers are spaced apart by 'so many dB of cable loss'; perhaps 22 dB of loss with amplifiers that have 25 dB of gain.

Let's assume you did this on a day when the temperature was 70 degree F. Everything went together and adjusted fine. The next day there is a burst of hot weather and the cable temperature climbs to 100 degrees F. Now the **cable losses increase** and where you previously had 22 dB of cable loss between amplifiers you suddenly have 23 dB of cable loss. One dB doesn't seem like much ... but:

1) That is 1 dB between **each pair** of amplifiers. If the cable plant is 20 amplifiers deep, then your additional loss between the headend and the last amplifiers is 1 x 20 or 20 dB. That is the same as losing one full amplifier in the system!

Humm. How do we solve this problem?

Cable amplifiers can be purchased with automatic gain controls. They have little temperature sensor circuits which raise the gain slightly at each amplifier station when the temperature climbs; they lower the gain by small amounts when the temperature goes down. That's one approach, and it is called **'ATC'** for Automatic Temperature Control.

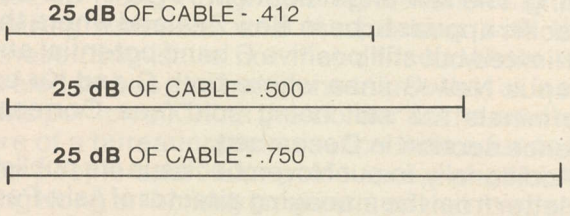
Another approach is Automatic Gain Control **(AGC)** and there are several ways to do this. One of the best involves sending a 'pilot carrier' down the cable. The pilot carrier is generated at the cable headend and is sent throughout the cable plant. Originally, the pilot carrier was positioned between channels 4 and 5 (ie. between 72 and 76 MHz) or in some other 'in-band' but unused spectrum. The concept is that the pilot carrier is a reference for the amplifier; if the pilot carrier signal goes 'down', the amplifier raises the gain in the AGC circuit to compensate. If it goes up, the gain is automatically reduced. More recently, the amplifiers using the pilot carrier approach use a pair of pilots frequency spread; one towards the low end of the cable band and another near the high end. And by modifying the system circuits, it is now possible to use a **standard TV carrier** as a pilot. This means that one low band channel (such as channel 4) and one high end channel (such as channel 13 or N, etc.) is used for the 'sense' part of the AGC system. Typically, three amplifiers in a row will sense just the high end pilot (ie. channel 13), then the fourth one will sense the low band pilot (ie. channel 4). Then the process repeats. In this way, there is virtually total compensation for temperature changes. As you can see, such a system does depend upon very stable outputs from the modulators in use for the pilot carrier channels since an erratic up and down output level from those modulators would drive the **'ALC'** (automatic level control) circuits down through the cable plant bananas!

EXTRA Carriers

The cable plant is a secure transmission medium; you design it that way to insure that customers will receive high quality, interference free picture and sound on as many channels as is financially practical.

It is also a 'mini-spectrum'; just like the 'real spectrum' that exists in the air(waves). In theory, you could place any signals you wished into the mini-spectrum and transmit those signals from the headend to the ends of the system.

However, the amplifiers as we have learned have limitations; each new amplifier in series/cascade introduces noise and undesired signal products into the spectrum. And **each new carrier** introduced has a way of decreasing the **total output capability** of the amplifier stations. For example, if we have a 20 channel system and the manufacturer tells us that we can space the amplifiers at 22 dB



ALL CABLE has loss; smaller diameter cable (ie. .412) **has more loss then larger diameter cable** (ie. .750). **You can go further between amplifiers, and use fewer overall amplifiers with larger cable.**

to 25 dB at the highest channel, the assumption is that this is being done with 'full channel loading'; ie., every one of the 20 channels is occupied.

Now suppose you wanted to insert into the cable distribution system some **additional** 'carriers'; narrow band signals such as radio or data. Even in a 20 channel system there is plenty of spectrum space for this:

1) In a 20 channel system ...
   - **A)** Channels 2-6 occupy 54-72 MHz and 76-88 MHz
   - **B)** Channels A-H occupy 120-168 MHz
   - **C)** Channels 7-13 occupy 174-216 MHz
2) And that leaves us with amplifier-capable, spectrum **holes** of 72-76 MHz, 88-120 MHz, 168-174 MHz.

We could 'stick' hundreds of additional carriers in these holes. Right? Well, yes and no.

Most cable systems do use the FM band between 88 and 108 MHz for cable carriage of local and not-so-local FM signals. There are two ways to do this:

1) Simply erect a broadband antenna which receives **all** of the FM band signals, amplify the **full** FM band, and then mix that spectrum (88-108 MHz) into the cable plant. This works, after a fashion, but the strong ones are strong, the weaker ones are weak, and there is a constant intermixing of the local and not so local FM signals.
2) Individually process **each** FM channel (there are 200 of them between 88. 1 MHz and 107.9 MHz!). That costs big bucks.

Fortunately, an FM receiver/tuner plugged into the cable system for its FM signal delivery requires far (far) less signal on FM than a TV set does to produce good results. Therefore the standard practice is to operate the full FM band carriage on cable so that the **strongest** FM signals are entering the cable system at a signal level that is 15 to 20 dB **weaker than** the nearest video signal carrier (ie. channel 6 video at 83.25 MHz). The problem here is to provide **enough** FM signal level so that the FM receivers work properly, but not so much signal that the FM stations being carried on the cable 'rob amplifier power' from the TV signals.

The same problem exists with adding any other signals to the cable; they must be inserted into the cable at levels which are (relative to the TV carriers) 'weak' to insure that there are no interference problems between the TV and other signals; and, since the amplifier stations all have maximum carrier-pass-through ratings, you must not exceed the total number of carriers/levels which the amplifier is capable of handling.

The bottom line is really quite simple; you are building a cable **TV** plant and any other use of the system should be (very) secondary to the cable **TV** intent. If you have problems, the quickest cure is to reduce the insertion level (signal level) at the headend for the **non**-TV signals. If reducing these levels improves but does not cure the problem, the next step may be elimination of the non TV carriers.

This series will start again in an early issue of CSD.

ASIAN TVRO?

ASIAN TVRO OPPORTUNITIES (Part 5)

Over the past five months we have been reporting on the observations of CSD's Bob Cooper throughout Australia and New Zealand this past summer. In our series to date we have learned that Australian TVRO, once a growing industry, has suffered badly with the transition from C band to Ku band and the introduction of B-MAC scrambling. The few bright spots in TVRO in the South Pacific appear to be in New Zealand where there is limited but still positive C band potential and in Papua New Guinea where both C and Ku band terminals are still being sold (see Correspondence section in December).

Additionally, in our November issue we published a letter from the managing director of Asia-Pacific Satellite Systems which reported their system business is now coasting along at the rate of 200 new systems per month. Those who read that letter carefully were perhaps surprised to learn that the majority of the APSS systems are in the 8-12 foot class and the systems are using the Palapa, and Chinese birds for programming sources. Our October and November issues also reported that Papua New Guinea, once a hotbed of C band activity with many 12 foot dishes sold was experiencing a degree of success selling upgrading kits

for the Australian Ku band service since the changeover of Australian ABC to Ku. All of this suggests an activity level in portions of Asia which few believed existed.

In our research trip through Hong Kong, a small portion of southern China (PRC), and Singapore/ Malaysia we found the conditions, we thought, 'ripe' for the introduction of TVRO. We'll explore those 'conditions' here.

Hong Kong

As tourists in Hong Kong, you are overwhelmed by the activity and the modern shopping arcades. A time clock is running for Hong Kong; much of the (British) 'territory' will revert back to its Chinese (PRC) owners in slightly more than ten years. Agreements worked out between the British and the Chinese suggest that the transition, when it does come, will be designed to upset the important trading functions of Hong Kong as little as possible. In other words, the current plan from PRC is to allow Hong Kong to continue to operate much as it has for centuries. Not everyone believes this, but a majority seem to and for now that is what matters.

Hong Kong has four local TV channels: two in Chinese and two in English. There is an interesting division in viewing; 97% of the people speak Chinese and a far-far smaller percentage speaks English. The viewing ratio is not nearly so lopsided but it is close. The British (English) maintain the non-Chinese service because they are 'in power', not because it can be totally justified by their percentages. The services are well run, include satellite feeds for news and sports and a decent assortment of foreign material flown in on tape. If there is a failing in the local TV, it is in the news area where no realistic sized news department could **possibly** cover all of the news in such an explosive, people-ridden 'city'.

Cable is a hot topic in Hong Kong. Several groups, including the local British owned Cable and Wireless (telephone company) firm would like to build a system there. Permission to build the system is expected, perhaps not soon, but before that happens there are decisions to be made regarding how and where the additional programming will originate. One of the proposals would shut down the two (very) minority English language TV stations, transferring their viewers to similar channels that would appear on the new cable service.

There **is** satellite TV in Hong Kong. Several hotels have it and at least on hotel group with the assistance of an Australian TVRO entrepreneur has attempted to cable out of the hotel proper into adjacent areas. This has aroused the wrath of the local authorities who do not appreciate the back-door attempt to cable TV. The hotel group owns several hotels and they have tried to maintain that they are not 'really' cable TV; merely a coaxial cable system tieing together their own (self owned) hotel properties. So far the last ruling is not in on that one.

Hong Kong has most of the important elements to have a runaway TVRO industry at the local level. People have money and at least in the 'trade sector' the interest in foreign broadcasts. However, the only service that is possible with 12 foot and down dishes is the two channel PRC (mainland China) feed and in many sections of Hong Kong it is possible to receive at least some PRC service via terrestrial transmitters. The Japanese Ku band services, perhaps of limited interest anyhow, are simply too far down to be possible and the Palapa C band services are possible, poorly, only on 20 foot and larger dishes. The AFRTS feed, heavily laden with CNN material is desirable (that's what the hotels are using) but only with 16 foot (marginal) to 24 foot antennas.

Cable, when it comes, is likely to pre-empt TVRO in Hong Kong before there is any serious TVRO activity there. But that does not rule out a Hong Kong role in TVRO; for the near term, Hong Kong is a very important 'distribution point' for TVRO hardware and systems just as it is for virtually everything else electronic and scientific.

PRC/ Southern Part

Everyone who has traveled into China becomes as instant expert. We will avoid that trap by noting that these observations seem valid only because we were not there long enough to find out what is really happening there.

China is an eye opener. No matter what your preconceptions were to begin with, it will surprise and perhaps unsettle you.

We anticipated outward friendship coupled with abject poverty and heavy controls. We found genuine friendship, modest wealth, and virtually no direct controls. Some examples.

For 100 miles or so to the north of Hong Kong, one see's forests of TV antennas pointed to the south; to Hong Kong. One also sees **local TV** receiving antennas and in speaking with the Chinese (English is not that difficult where we traveled by bus and train) one learns that at least in this portion of China the 'border' to the south is more of a bureaucratic nuisance than a fence to keep people apart. Our guide spoke of going to Hong Kong on holiday to 'shop' and visit relatives. She was 'hip' and up to date on styles, music, and news. She was as well informed about the English speaking world as anyone we met in Hong Kong proper.

We traveled from Hong Kong to the mainland by

boat and then climbed aboard an air conditioned bus for another hundred mile trip to Canton. The bus was equipped with a two-way radio, built in China. The radio had five channels and was apparently capable of 25 watts of FM in a UHF region close to 450 MHz. The driver monitored one channel constantly and there was lively chatter on that channel fulltime. We noticed that for no reason he would suddenly slow the bus down and crawl along for several miles before resuming his usual breakneck speeds. We learned why.

"All of the bus drivers, and the truck drivers monitor this channel. When a driver spots a police patrol checking the highway, he alerts others on this channel where the patrol is so they can slow down and avoid being 'charged' with speeding."

CB radio in China???

Driving at death defying speeds, we often overtook cab over trucks hauling one or two 20 foot container vans. The containers were all plainly marked with their point of origin. Boston, Philadelphia, San Diego, Seattle. USA flags were painted on many. We probably overtook and passed several hundred such container vans in a four hour trip. Our conclusion? If the vans were empty and heading to some point to be filled with Chinese goods, America is indeed doing a very lively business with PRC these days. If the vans were filled with American goods going into China, China is indeed doing a lively business with America these days.

Our bus was crawling through a factory district in the border region. We were on the wrong side of the bus to see it coming, but there through the side window Patti spotted a 4.5 meter dish, appropriately pointed, with a Ku band feed. The factory sign identified the business; an electronics manufacturing plant. We asked questions (getting the bus to stop with little warning proved impossible; the other 30 tourists didn't know from satellite dishes and we had just delayed their departure ten minutes by wandering off on our own to videotape a local produce market). "**Yes, we manufacture satellite antennas and receivers here. We do this under contract from a Japanese firm**". The Japanese firm's name would be familiar to each of you. So would their US clients for whom they build satellite receivers. In fact, you possibly now sell and install TVRO receivers which you think are made in Japan under contract for this particular firm. Surprise; they are made in PRC!

"Young people here have several objectives in life; first they want their own apartment, separate from their families. Next they want their own television set, a color set, with the ability to pick up the Hong Kong broadcasts. Then they want their own stereo/hi-fi system. After that, they want a motorbike (almost nobody has a private car in China). Finally, they want to be wed and to have furniture like they see on Hong Kong television".

The southern district, surrounding Hong Kong, is (they say) an 'experiment' in individual initiative. Communes are yesterday; owning your own plot of ground, raising produce for yourself and then selling the excess is the new style of life. It is from the **profits** of the excess you grow that you buy television sets and motorbikes and have your own apartment. It works, as we saw while walking through the local markets. Profits are not an ugly word. Capitalism is not a nasty word. Private initiative is 'in' and as China comes closer and closer to the middle 90s when significant portions of Hong Kong revert to PRC control, the way is being cleared for all of this to mesh.

A surprise. On some larger apartment buildings close to Canton I spotted large off-air antennas obviously intended for the reception of the Hong Kong broadcasts. I asked about them.

"**Some people have built those antennas to bring in Hong Kong reception**. They are renting space on the roofs to erect those antennas and then they 'share' the reception with other people in the same apartment building. They charge a monthly fee for this." **MATV**, the baby brother of CATV, **in China**? Yes indeed. People paying money to receive the desirable Hong Kong transmissions. And the government is actually encouraging the 'enterprise'. That may crack your fortune cookie.

The Chinese have made sweeping changes in the direction of government; you read about this in the popular news magazines and you see snippets of this on television. But you have to be there and see it as you relate to the world to appreciate just how profound this change in policy has been.

SMATV only adds a single letter to MATV. The policy, for now, seems to be to allow the importation of services. There is a business here, as well as a profound series of human, legal and commercial challenges. Somebody will make something of all of this. And you first read about it here.

SINGAPORE/Malaysia

Several hours south of Hong Kong after winging your way high above Viet Nam, you arrive in Singapore. This is one of the most unusual spots in the entire world. Singapore is the second largest/busiest water shipping port in the world (quick: can you name the busiest? Surprise, it is The Netherlands!). Of all of the major (and minor) airports we have visited in the world, Singapore is the most modern and best equipped of all. Few airports inspire you. This one does. It is the cleanest, the most sensible, the most well run and the most

inviting 'port of entry' you are ever likely to encounter (leaving is **slightly** less pleasant, but that is another story).

Singapore is an island/city state. It governs itself but it is very rich in British tradition. It is also very rich in commercial traditions. And it provides for its citizens as few 'countries' do in this world.

The first thing that you notice, after the attractive airport, is the mile upon mile of public housing that lines the main highways into the city. Public housing usually is a miserable flop; people who cannot afford to own their own housing usually end up getting government subsidized housing which they proceed to treat as if it were an outhouse. Somebody else's outhouse. **Not in Singapore**. The ten to fifteen story public apartment complexes number in the thousands and all appear, from the outside, to have been freshly built in the last week or two. The windows are intact, the lawns are mowed and clean, the landscaping breathtaking. That's when you also notice that there is no litter in the streets. Not even a candy or gum wrapper. How can more than two million people live here and not toss even a candy wrapper into the gutter?

Prosperity abounds in Singapore. To be sure, there are sections of town where the good life has not yet arrived. But even here the streets are tidy and the people well scrubbed and smiling. Singapore, if nothing else, is a resounding 'commercial success'.

Singapore explodes many myths. For example, you may believe that people who live and work where it is always hot and humid have no energy, and they develop the 'manana' (lazy) habits of life. Singapore is almost directly on the Equator. It doesn't get much hotter, nor much more humid than in Singapore. Yet the city-state bustles with activity, achievement, enthusiasm and a high quality work ethic.

Singapore is a shopping paradise. If there is such a thing anymore (see Coop's Comments in December). Block after block of shopping malls and huge department stores as modern as any in the world (and typically better stocked than most) are of course airconditioned for the shopper's comfort. English, even more so than Hong Kong, is the universal language of commerce.

Television is surprising as well; up to 8 local channels, in both English and native languages. Stations are commercial and private, noncommercial and public. Singapore sits squarely in the middle of the oil and export rich business core of Malaysia. It is the business focus point for everything from oil transshipment and copra production to semiconductor fabrication and telescope lens design.

There is virtually no TVRO activity is Singapore (although in the Malaysian states just outside the city limits there is now some). One wonders why. The answers are uneven.

"**Why would we want more television**? We already have so many channels, we couldn't possibly be missing anything important!".

"Yes, I think I would like to have Chinese (PRC) television in my home; my family emigrated here from China 30 years age. But I am not sure we would be 'allowed' to have such a system."

"**Our hotel has considered** putting in satellite television for the AFRTS service we see in some hotels in Hong Kong. In fact our hotel is part of a chain of hotels that has that service in our Hong Kong hotels. But I don't think we would be 'allowed' to do it here".

In some Asian countries, local television actually signs off the air between 6 (or 7) PM and an hour or two later. They do this to insure that the school age children have no distractions to get in the way of their school homework. This sort of approach may not fit Singapore's television system, but it illustrates the social concerns many Asian governments share for the impact of television on local lifestyles.

You may not notice the signs in your first few days in Singapore, but this is a very tightly operated city-state. Those in power have very firm policies on everything of importance and while there seems to be a minimal amount of government intrusion on private life, the 'rules' here are far stricter than in many other 'advanced countries'. Free enterprise, yes. But **only** under the strict rules and regulations **set down by government**.

Those who saw some promise in having satellite television were reflecting their fears that the importation of 'foreign' views, uncensored and outside the watchful eye of government, would never pass muster here. They may have this attitude because they have lived here long enough to feel that way about anything new, or they may genuinely believe that the leaders of the country know what is best for them. And they instinctively feel that satellite TV would not be 'best' for them.

Surrounding Singapore is the peninsula state of Malaysia and the multi-thousand island state of Indonesia. Malaysia is like Florida; well defined, with water on three sides. Indonesia is like Texas gone to sea; it extends forever all across the South China Sea, the (eastern) Indian Ocean and dozens of other lesser known 'seas' all the way to the Pacific Ocean. Indonesia, of course, has its own (Palapa) satellite system. TVRO has made a few inroads in these countries but the problems are not incidental. A 'healthy' Palapa satellite system, rapidly turning into a '**regional** domestic system' as more and more countries lease transponder space, is key to the near and long term success of TVRO in this portion of the world. The sales trend is up, perhaps rapidly at the moment.

But men and materials do not move through these countries easily, cheaply nor reliably. It is not a business challenge for someone who thinks your delivery problems are over after you call Yellow Freight Lines for a routine afternoon pickup of a crate.

We identify this region as having excellent growth potential, and **possibly** being ripe for the creation of local antenna products. However, containerized shipments moving by sea through Singapore are about as cheaply transported into this region as any transport anyplace in the world so the advantages to building products locally to avoid high freight are minimal. Getting large, bulky goods (such as antennas) into the region is cheap; local distribution, once here, may prove to be expensive. Especially when the goods must transfer from country to country between initial landing and final destination.

AND Tahiti

Who would turn down an opportunity to visit Tahiti??? Isn't that the place where brown skinned girls fan you with a palm branch while you sip a coconut drink laced with French Cognac sitting on a pure-white sandy beach?

Tahiti is one island, a part of something called French Polynesia. It is more or less due south of Hawaii and as far south of the Equator as Hawaii is north (20 degrees). That should suggest that Tahiti would be Oahu that speaks French.

Tahiti must be the best kept secret in the world. But not the secret that you might suspect. If you are an old time reader of CSD, you may recall the 'fondness' the CSD expedition group had for Bombay in India when the group of 20 or so laid over there coming and going to visit Arthur C. Clarke in 1983. **Tahiti reminds one of a Bombay that speaks French.**

The island of Tahiti is roughly square or a circle, depending upon whether you draw with a French or English 'compass'. A road 'circles' the island and if you want to see the island you rent a tiny French car that saw its last routine maintenance as it left the factory decades prior and you drive the circumference of the island. The capital city for all of the country, **Papeete**, rests in one of the four corners of the island. The trip around the perimeter road will take you perhaps three to four hours driving at a very modest speed. Driving faster than that in your French car will subject you to certain death because both the road and the car were designed for walking speeds.

The Papeete airport is the first shock. If you graded all of the airports in the world and placed Singapore at the top of the scale and Bombay at the bottom of the scale, Papeete airport would be closer to Bombay for position. We had originally intended to spend two days on Papeete and two days at an 'out island' which promised romantic interludes suspended in a thatched roof hut over a lazy Pacific lagoon. After **twelve hours** on Papeete, the side trip to the unnamed out island was cancelled before it began and in its place we substituted the **first plane** to Los Angeles we could find. In a nutshell, Papeete was not our favorite stop in a seven week trip. It was, in fact, out least favorite place.

Papeete has **no beaches**. Actually, that is a **slight** exaggeration. In our island-circling self-directed tour, we did find one beach. **One**. It was perhaps a quarter of a mile long, and was covered with black pebbles and coarse black sand. And then the pebbles and coarse sand were covered with beer cans, broken bottles, sewage, chunks of rotting wood filled with rusty nails, and fish heads. And then that was generously sprinkled with rotting seaweed. Donning shoes (army boots would have been more appropriate) we tread carefully on the debris trying to figure out why a couple of dozen surfers were braving this garbage dump to test the 7 to 10 foot seas rolling ashore. We found the answer; they were all zonked out of their minds on some substance they were chewing and smoking. A delightful experience.

Papeete is a living garbage dump. Downtown, the primary shopping area, was overrun with huge mounds of fresh and not so fresh garbage. Rats scurried down the streets and people young and old dug through the debris. We tried to ignore all of this, sure that the garbage collectors were doing something very French that day, such as striking. We asked about the piles on the street.

"**There are many complaints about the garbage**" admitted the bistro waiter. "There is a lady who lives here (Papeete) who is circulating a petition to have it cleaned up". He shrugged his shoulders while relating this; his sign to us that an army of ladies could circulate petitions, and the garbage would still be there.

The shops function with a locally contrived, French created, currency system that defies description. There are French Francs, those that come from France. Then there are Pacific Francs, those that come from the French Pacific territories. There is an exchange rate between the two, and it slides up and down by the minute if not the second. If you start out with a neutral currency such as the American dollar, you go through a sort of double exchange to get to the Pacific Franc. Someplace in this fast-of-hand double transaction you pass into a twilight zone where nobody understands what is happening. When you get done and find yourself standing there with this huge stack of 5,000 and 10,000 and 100,000 Pacific Franc notes plus a sack of coins that is heavier than your luggage, you are ready to do battle with the shop-

keepers. Changing your neutral money into the Pacific Francs was your first mistake; trying to purchase something in a shop will be the next error in judgement.

A 13 inch Sony television receiver after all of the fancy currency exchange comes in at $1,850 US. A run of the mill VCR, pick a brand you like, at $2,200 (US). French products, from the mother country, run 2 to 3 times as much in Papeete as in America. A soft drink is more than $5 US and a cup of coffee and a roll of some sort was $8.50 US. Hotel rooms are similarly priced ($200 US per night is typical).

There is one local TV channel. We looked hard for somebody with a dish. We found one; at the local post and telegraph office. We were there during the World Cup Soccer finals and sure enough, they were getting **an hour** per day via satellite. The local TV channel, government operated, was on the air around five hours per day. The SECAM color was superb. Nothing else good can be related about their television.

'Checking out early' (two days ahead of schedule) gave us the opportunity to compare notes with other tourists who were leaving. Quantas flies a route from Sydney (Australia) to Papeete and then on to Los Angeles. One can stop over the Papeete for as many days as one wishes for no increase in fare. That's how we got there in the first place. The departure of Quantas was scheduled for 11:30 that evening. We arrived at the airport at **7:30** just to be certain we did get on. We were **not** the first to arrive for the flight.

"**We WENT to** (name of out island) **and stayed in the over-lagoon thatched huts**" volunteered one couple. "We awoke in the middle of the first night - last night - to find rats scurrying all over the bed. We left two days early and can't get out of here fast enough". So much for the out islands.

Another lady insisted on standing at the gate from 8 PM onward. She had her boarding pass clutched in her hand and her male companion sat down some twenty feet away in the chairs provided. He kept trying to talk her into sitting down. She refused to budge. We heard her say to him:

"**I have been here 48 hours** and every one of those hours was a living nightmare. If I have to stay here one more night, I will die. I am going to be the **first** person on the airplane and if I have to wait here 3 hours in front of this gate, so be it!".

And she did stand there. Every few minutes she would relate some other 'amusing' incident connected with her two day stay. "Remember the rat than ran across my foot in the restaurant!" she exclaimed. "Remember that 'thing' that we found in bed with us?" she started again. We were in stitches for three hours.

A small person, dressed in a Catholic nun's uniform walked up to this lady. "Is this the line for the Quantas flight to Los Angeles?" asked the meek little nun. The tanned, blonde haired lady looked down at her and smiled at us.

"Yes it is, but the END of the line is back there!" she pointed, several people behind her. The nun thanked her and pulling her small luggage cart trotted to the rear of the line.

"If she had tried to get in line here, **I would have wrapped that luggage cart around** both **of her legs**" she muttered in a tone that would have made WC Fields proud. "I spent seven years in a Catholic school, but if she had tried to muscle in on my spot, I would have gladly blown all seven of those years. **Nobody** is going to get on this airplane before me!" And sure enough, when the Quantas flight finally did board, she raced across the tarmac and up the portable stairs onto the DC10 in world record time.

Tahiti offers no potential for satellite television enterprise. A list of several hundred things they do need could be jotted on a note pad as fast as one could write. Satellite television would never make that list.

Synopsis

Singapore and the surrounding Malaysian countryside offer an interesting potential for dish sales. In fact, anything within the 30/32 dBw contour of the Indonesian Palapa satellite is interesting.

Equally interesting is the People's Republic of China, although that is a statement made without any **real knowledge** of how one would go about getting started there as a 'foreign' corporation. If the PRC was simply Puerto Rico and you could move there today and open up for business tomorrow doing SMATV and MATV installations in large housing complexes, you might be a millionaire in a year. Alas, the PRC is not Puerto Rico and although the people there have the apparent incomes to pay for such a service and the inclination for as many television program choices as possible, getting 'there' from where you now are could be both the adventure of your lifetime and an exercise in great futility. We don't solve all of the problems; merely point out the opportunities.

Hong Kong has bigger fish to fry and with the coming of cable, the only real opportunities are in the hotel systems. You'll need big bucks, considerable patience to wade through the tough British and Chinese bureaucracies, and better than average skills to play TVRO there. It wouldn't hurt to speak Mandarin.

Tahiti is to be avoided at all costs. The Papeete TV station only covers the single 'main' island (of Tahiti) and further out there is a sizeable 'group' of islands. **Perhaps**, someplace out there in the 'out-islands' there is a resort or two that needs, wants,

and is willing to pay for an Intelsat type installation. There are certainly many islands where the Papeete TV station does not reach. On the other hand, if you could figure out a way to sell satellite TV to the rats, you'd be a millionaire in a month or less. Just make sure you get paid in US dollars, preferably placed on deposit for you into a Swiss bank account.

INDUSTRY AT LARGE

CORRESPONDENCE, NOTES, REBUTTALS AND CHARGES . . .

CST provides this industry 'forum' for the purpose of allowing members of the industry to comment on industry activities. CSD assumes no legal responsibility for statements made here and those providing such communications are held liable for their statements directly.

FROM JAKARTA With Love

I am a relatively new subscriber to CSD and thoroughly enjoy the articles on international reception because of my location in Jakarta, Indonesia.

I have a 12 foot Paraclipse dish and receive the AFRTS feed from the Intelsat bird at 179 east; this is Intelsat IV-A/F3. To make my 12 foot dish perform, I had to install it on a 20 foot tower in the rear of my home. The F3 bird is around 8 degrees above the horizon here to the east so we are really scraping by with little margin!

After I had my installation completed, the Indonesian government decreed that in order to own a dish here you must have a government license. On top of that, you are only allowed to watch the domestic satellite Palapa. Of course here in Jakarta, the Indonesian English language programs are received perfectly via terrestrial TV so in fact one does not need a TVRO to watch the programs we are now allowed to watch with a dish (many of the more remote islands, however, have no terrestrial TV so the dish is still needed there). We do not have 'the Videocipher problem' here, yet; our big problem is finding English language television!

One of the topics I would like to see addressed in CSD is the half transponder format services which are common on Intelsat; typically 18 MHz wide. I am using a USS Maspro SRE-80L Japanese issue receiver with a 30 to 36 MHz bandwidth and when I tune in a transponder in use by two half transponder video services, I get them both; not too swift.

My background and work is in geology so I am not presently equipped to sort this out. I have figured out that I will need some sort of filter that works in this receiver's (400 MHz range) IF loop to separate the lower and upper halves of the transponder.

The audio is another apparent problem. By taking the output from the composite output on the receiver and running it into a shortwave communications receiver, I was able to recover some audio although the audio is not high fidelity. This led me to the conclusion that the audio subcarrier for the 18 MHz half transponder is apparently quite narrow and thus I cannot recover it with the standard TVRO receiver. Is this a correct assumption? Perhaps I need a special demodulator such as that manufactured by Arunta or USS Maspro? Please make some suggestions.

The present regulations have put quite a crimp on interest in TVRO in the Jakarta region, and nobody wants to get 'caught' tuning in a broadcast from a source not authorized (ie. AFRTS). Therefore please do not include my name and address in CSD if you do happen to comment on my problems there.

A Person In
Jakarta, Indonesia

When half transponder video is used, the former 'middle' **of the transponder, half way between the bottom and top ends of the channel, becomes the dividing line between** two **separate halves. This shifts the baseband frequencies for the two** (or single) **video signals down** (or up) **by about 9 MHz relative to the receiver's IF bandwidth. This also means that the audio demodulator section of the receiver no longer tunes the proper portion of the frequency spectrum for audio recovery.**

Half-transponder filters are available. Arunta and Phantom are two sources; ASP, Inc. (3341 Holwyn Drive, Louisville, Ky. 40503) **is another source. Your problem with recovering audio will straighten itself out when you resolve the half transponder filter problem. We have passed your letter along to Doug Dehnert at USS-Maspro since they are the most familiar people with their** (own) **receiver.**

The Indonesian response to TVRO, creating a license structure and then dictating that dishes may only be used to view Palapa transmissions, is yet another example of the attempt to control the dissemination of news and information by a government policy. Sad.

SHAFT Time?

Enclosed find a recent print advertisement from Tempo Television. It appears Tempo (F3R, TR6) is eliminating their per subscriber fee for their service, to cable television operators. What does this do to their plans to scramble their service? Also, what happens to their plans as reported in **Satellite Times** (9/17/86) to turn TVRO dealers into commissioned sales agents?

How do I get my 6% rebate (kickback) for my zip code areas not serviced by cable? How do I get my share of areas which are partially cable and partially dish served? Don't tell me we get the short end of the stick again!

Kenneth A. Johnson
AOK Satellite
Johnson Avenue
New Preston, Ct. 06777

TEMPO is an interesting success story. It began way back in 1978 as a 3 hour per day filler when San Francisco/ Oakland KTVU **used to be distributed as an indie signal on satellite. When KTVU was off the air in the wee hours, the people at** (then) **Southern Satellite Systems allowed cable operators to fill that time with cable produced programs. That didn't go too well but other groups wanted satellite transponder time. The concept of providing an** 'open' **satellite channel, to any firm that had the bucks available to pay for the time, worked and eventually it grew into its own 24 hour per day service. Tempo pays around $100 per hour for the basic transponder time on a lease. They resell time in 'prime time'** for as much as $6,000 per hour. Not a shabby markup. The 'secret' is that they are able to deliver homes, cable-television homes, by having a spot on the cable dial in significant cable systems. Why Tempo would endanger that relationship with cable, and therefore their economic base, by doing any favors to the home dish industry, **is something of a mystery. We don't expect any favors from Tempo.**

CBN Backtracking

I thought this letter, received from CBN, would be of interest. It reads:

'Thank you for your interest in the CBN Cable Network and for taking the time to write in reference to the scrambling issue.

We appreciate hearing from you.

'The certificate to view CBN which you refer to was issued in 1980 by what was then The Christian Broadcasting Network's Satellite Services, a full-time religious network. In 1981, in a move to attract a wider audience, its name was changed to CBN Satellite Network and then later to the CBN **Cable** Network. At that time it also became advertiser-supported and surrounded its spiritual programs with a variety of quality entertainment shows. And thus **CBN Network** came into being.

'Since satellite dish owners are not counted by ratings services, perhaps the 1.5 million or more viewers who have TVROs are not even included in the numbers that determine CBN's advertising rate base. It is these ad rates that make it possible for CBN to pay for the family entertainment enjoyed by so many viewers. Such a situation leaves little alternative but to scramble the satellite signal and begin to consider charging a fee to all viewers of their network.

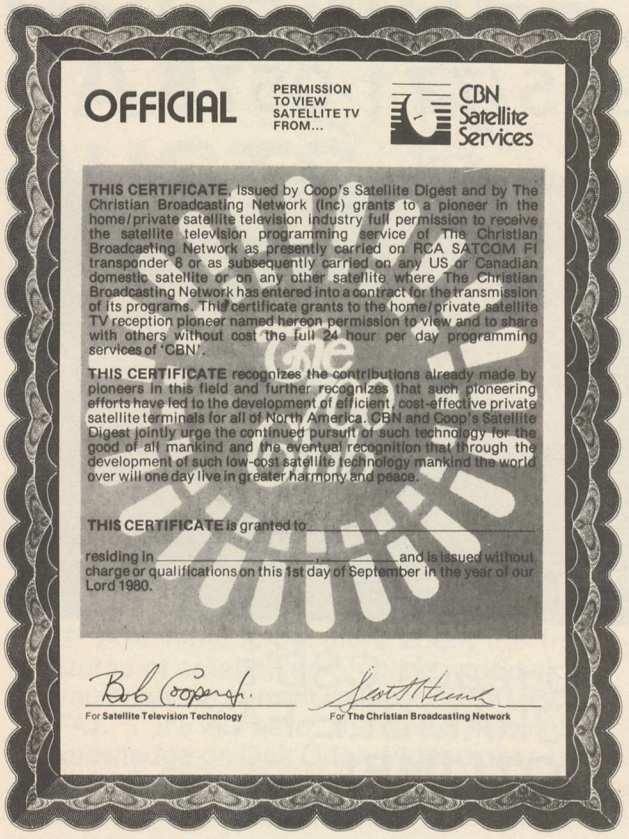
'I hope this answers some of your questions. Again, thank you for writing and have a good day.'

The letter is signed by Michelle Hayes, Public Liaison Coordinator for CBN (Cable) Network (CBN Center, Virginia Beach, Va. 23463; 804/424-7777). I guess that means the **CBN Certificate**, issued in 1980 and distributed to home dish owners in **CSD Magazine** as an insert, is no longer valid.

Thomas Harrington
Box 1090
Boca Grande, Fl. 33921

On page P3 in the programming section of CSD **for September of 1980, CSD published a full page** 'certificate' **which we had worked out in advance with the then** 'Christian Broadcasting Network'. **We show that certificate here. At the time this was created, several of the nasty programmers** (read HBO) **were telling Congress and the FCC that** ALL **private dishes were illegal, that** NO **private earth stations had** 'permission' **to view anything; ipso-facto, ownership of a TVRO was itself illegal since there were no services extending** 'permission' **to view.**

This Coop created certificate shot-down HBO and the other nasties in flames; their statements to Congress evaporated for the hypocrisy they really were.



OFFICIAL PERMISSION TO VIEW SATELLITE TV FROM... CBN Satellite Services

THIS CERTIFICATE, issued by Coop's Satellite Digest and by The Christian Broadcasting Network (Inc) grants to a pioneer in the home/private satellite television industry full permission to receive the satellite television programming service of The Christian Broadcasting Network as presently carried on RCA SATCOM FI transponder 6 or as subsequently carried on any US or Canadian domestic satellite or on any other satellite where The Christian Broadcasting Network has entered into a contract for the transmission of its programs. This certificate grants to the home/private satellite TV reception pioneer named hereon permission to view and to share with others without cost the full 24 hour per day programming services of 'CBN'.

THIS CERTIFICATE recognizes the contributions already made by pioneers in this field and further recognizes that such pioneering efforts have led to the development of efficient, cost-effective private satellite terminals for all of North America. CBN and Coop's Satellite Digest jointly urge the continued pursuit of such technology for the good of all mankind and the eventual recognition that through the development of such low-cost satellite technology mankind the world over will one day live in greater harmony and peace.

THIS CERTIFICATE is granted to _____

residing in _____ and is issued without charge or qualifications on this 1st day of September in the year of our Lord 1980.

Bob Cooper
For Satellite Television Technology

Scott Hamm
For The Christian Broadcasting Network

CBN is wiggling off the hook now on the validity of their certificate. As most readers know, CBN (now **'Cable** Network') **has decided that they will scramble. The gobble-d-gook text of the Michelle Hayes letter tells us they are still searching for a** 'rational reason' **for cutting off the home dish viewers with scrambling. We hope the** Good Lord **gives them additional guidance in this matter.**

STARTING UP In Chile

We are a small country in the field of electronic devices and very interested in TVRO systems. In Chile, nobody sells this type of equipment and we would like to be the first ones to do so. We believe there is a potential market here since there are more than two million TV sets in our country. To get started, we are hopeful of representing a leading American company in this field. Our plan is to sell systems at first and then eventually go into manufacture of equipment under license. To help us get started, we would appreciate hearing from US or Canadian firms who have products to sell in this field. We also need to learn if there are sufficient satellite signals available to make home systems viable, and if any of these signals are scrambled. What are the laws regarding use of these US signals, in Chile?

Patricio Lagos Lehuede
Thortronic
Casilla 15013
Santiago 11, Chile

Some quantity of 25 to 30 foot dishes, created by Continental Electronics were sold throughout Chile several

DIAL THIS NUMBER -

305/771-0575

To reach CSD's SCRAMBLE-FAX **HOTLINE!**

24 hours per day, **seven** days per week, you can receive a **free updated report** on the latest happenings in the TVRO 'scrambling world' by calling our **SCRAMBLE-FAX HOTLINE.** When important news breaks, when important announcements are made, you learn first from SCRAMBLE-FAX HOTLINE.

SCRAMBLE-FAX HOTLINE IS A 'between issues updating service' for CSD's highly acclaimed and frequently quoted SCRAMBLE-FAX NEWSLETTER. On the 'Hotline' you will learn about the latest scrambling schedules, where programming services may be 'bought' for the lowest dollar, who is working on the anti-scrambling. News you need to know, when you need to know it. Best of all, it is 'free'; you pay only for your telephone connection.

NOW, if having **all of the relevent facts** concerning scrambling is important to you and your business, you will want to order our SCRAMBLE-FAX NEWSLETTER, and complete information for ordering this newsletter is found to the right.

years ago as a part of the Chilean expansion of their domestic use of Intelsat. Similar size dishes are required for the Intelsat grade signals originating from Argentina, Colombia, Venezuela and Peru. Smaller dishes might function for some portions of Chile for the Brazilian domestic satellite system. US signals will be limited to the AFRTS feeds from Intelsat on 1 west and they, we understand, will scramble **sometime during 1987. Readers in the US industry stateside should contact Patricio directly concerning his firm representing them in Chile.**

TUNING In Satellite Audio

Recently while browsing through a local Radio Shack I saw a multi-band (AM/FM/TV) radio in the 'Manager's Special' display for $11.95. Remembering an article you wrote in CSD a couple of years ago, I purchased same. After finding the article in the June 1984 issue of Coop's, I installed the radio on my AVCOM 3 just as you detailed. I quickly found Natinal Public Radio on Westar 4, as predicted. The dial on the radio does not quite agree with the information in the article (it is close) but what should I expect for $11.95! That's minor and I was very pleased with my $12 'special' SCPC tuner.

Now my story goes downhill fast. While pleased with the reception, here in Austin where we have a multiplicity of radio services, it was primarily a curiosity. I wanted to take it to a second home in western Colorado where no off-air radio (nor TV) exists. I took the receiver there hopeful of enjoying 'All Things Expected' from NPR. The receiver located there is a Luxor 9533. I hooked it up as detailed, using a voltage blocking coupler as the DC10 did not block DC. In tuning the radio you can barely detect audio, as a loud hum appears near the carrier. I checked possible voltage getting past the block (and hence into the receiver) but found none. Do you have any suggestions?

Philip C. Vitek
Texas Satellite Receiving
Company, Inc.
1135 West 6th, #130
Austin, Texas 78703

Hummm. Or perhaps huuuum. It sounds like we have two **distinct, perhaps related problems. For those joining us late, if you take an FM receiver that tunes the frequency band 50-90 MHz, and connect it** (properly DC isolated) **to a downconverter and retain a method of changing channels** (such as leaving the TVRO receiver also hooked up; use a splitter and block to the FM receiver), **you have a way to tune in FM audio signals that are transmitted on birds such as Westar 4. But the satellite receiver MUST have a 70 MHz IF, it must have sufficent gain in the downconverter to drive through a splitter both the TVRO receiver and FM/SCPC receiver, and there can be no DC** (nor AC) **appearing on the SCPC antenna terminals. Weak audio** (barely heard), **if the correct audio** (ie. the right service at the right spot on the dial) **suggests a failing downconverter. Hummmm suggests the downconverter is not getting enough voltage. Or maybe life is far simpler than that and somebody dropped the Radio Shack receiver on the trip. Take it back to Texas and try it again to make sure it didn't get busted in transit if everything else checks out.**

GETTING Ripped In Canada

I am a small dealer in a small Canadian town that has a brand new cable TV service. I am not doing much business since cable came and I don't feel like getting ripped off anymore. I am very afraid that between cable and scrambling, my life as a dealer may be approaching a rapid end. Last January I bought and installed a Gensat 4/12 system for a customer. The receiver had several problems such as running very hot, being

affected by the TV set (we had to move it 3 feet away from the TV set to get it to stop shutting itself off!). My customer is mad as hell because Gensat went out of business, and some other firm wants $180 to fix the receiver while the receiver is still under warranty. I tried to obtain service information for the receiver and after 24 years of fixing televisions and radios feel I can handle it. They refuse to send me servicing information and I have no schematic nor way to start.

Help!

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GENSAT is trying to come back and Sam Singer **is doing his best to get things running properly again. They had a very elegant, and sophisticated receiver** (the 4/12 unit) **when the marketplace turned upside down on them. Perhaps Sam, being the good fellow he is, will see this and take a personal interest in straightening out this problem;** 'Ay Sam?

BEWARE/HBO and RCA

A patent was issued on July 22, 1986 to two RCA engineers and assigned to the RCA Corp. Since the patent was filed on December 27, 1983, its grant, at approximately the same time as the announcement of the joint venture between HBO and RCA for the marketing of Ku-Band signals, can only be considered coincidental. However, the phrase: "The transformed format is particularly suitable for communication over DBS (direct-broadcast satellite)." should raise our antennae as to the underlying aim of the HBO/RCA venture.

I asked Andrew Hospodor, President of RCA Americom, about it recently at the Satellite Access Conference in Keystone, Colorado, and he was very vague on the subject, saying that the RCA patent was just a laboratory experiment and that HBO/RCA were completely behind M/A-Com's VideoCipher system. Michael Fuchs, Chairman of HBO, at the recent Senate hearings was equally vague on the subject of HBO's plans for the marketing of Ku-Band signals, much to Sen. Al Gore's displeasure.

I believe that both Hospodor and Fuchs are being "less than forthright" (Sen. Gore's phrase) and that the paramount threat to the home satellite industry is the monopolization of Ku-Band signals by HBO and RCA. What better method of accomplishing this than by controlling the delivery vehicle **and** the encryption system?

We must be very vigilant in our dealings with the Congress, the FCC and the Justice Department to make certain that no distinction be legally made between Ku-Band and other frequency bands. **All** satellite-delivered cable programming must be treated equally. I believe that the battle-ground for satellite-delivered entertainment in the late 1980's, whether to cable systems, direct-to-the-home or SMATV will be fought at Ku-Band and that our industry cannot afford to overlook this.

Taylor Howard, in his testimony before the Senate on July 31, 1986 was very explicit on this subject:

> "HBO's transmissions as well as those of many other satellite programmers are gradually migrating from the C-Band (4/6 GHz) commonly in use today to the Ku-Band (12 GHz utilizing smaller diameter antennas). HBO and RCA, for example, have reached an agreement to form a joint venture to purchase their own Ku-Band satellite. Prior to the availability of this satellite, both HBO and Cinemax will be available on another Ku-Band satellite but only to cable television systems. The supposed reason for the use of these Ku-Band satellites is that it enables cable operators to use smaller diameter and less costly reception equipment and it substantially reduces interference problems caused by the terrestrial microwave transmissions. Simi-

larly, Ku-Band transmissions will present advantages for home earth station owners also, particularly in more urban environments.

Nowhere in the decision to migrate to Ku-Band are the interests of home earth station owners rights considered. In fact, HBO is quite clear. Ku-Band transmissions will be denied to homeowners. Joe Collins, HBO President, stated:

"Unlike HBO C-Band transmissions, Ku-Band transmissions of HBO and Cinemax will be scrambled from their onset and are intended to be received **only by cable affiliates** . . . Since our Ku-Band signals will be encoded and there is no installed base of consumer equipment to receive Ku-Band transmissions, HBO currently plans to offer its services to home TVRO owners only through C-Band satellites . . ."

C-Band satellites have a future useful life of about five to ten years. At that rate, today's C-Band satellite transmissions will soon cease. As satellite subscription services are beginning to migrate from C-Band to Ku-Band, that migration might well be accompanied by service termination to home satellite antenna owners by companies such as HBO. There is no rational business reason for this service termination except protection of cable revenues. To permit that plan to take effect is to deny the benefits of satellite television so recently recognized by Congress. That plan cannot be allowed to become a reality."

Senator Gore's proposed Bill "The Satellite Television Open Market Act of 1986 "defined:

"Satellite cable programming means programming transmitted via domestic geostationary communication satellite intended for the reception by cable television system subscribers or by the audience of broadcast stations licensed by the Commission."

While there are many encryption systems available (B-MAC, Oak/Orion, Sony/TeleFirst, MAAST, etc.), the entry into the field by the giant RCA Corp. (now owned by General Electric) spells an imminent danger to the availability of Ku Band signals to home earth station owners and threatens the monopolization of this technology by HBO and RCA to the detriment of the public.

We must continue to fight for an "open sky" policy for all satellite cable programming as well as for a standardization of encryption systems. As you read this, M/A-Com's VideoCipher technology may already be obsolete.

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A copy of the RCA patent (#4,602,274) is available for $1.50 from U.S. Patent and Trademark Office, Washington, DC 20231.

TRANSPONDER WATCH

RECENT REPORTS OF ACTIVITY ON DOMESTIC / INTERNATIONAL SATELLITES

Send your reports to CSD Transponder Watch, P.O. Box 100858, Ft. Lauderdale, FL 33310. For late news, call (305) 771-0505.

SCOLA, the Omaha based university group attempting to put up live and delayed feeds from all over the world for University and college use, has decided it will scramble feeds.

EUROPA feed, originating in Holland, went dark over Europe at the end of November owing Dutch authorities more than $5M in fees for uplinking and transponder time.

US Government agencies seem to be pulling together to replace Shuttle as satellite launch system with expendable 'ELVs'. Plan now is to assist private industry to get moving fast with ELV launchers using government owned launch facilities in California and Florida.

BRITISH Satellite Broadcasting has been awarded a 15 year 'license' to provide a 3 channel high power DBS service over the UK. There will be 3 satellites in the system; two in orbit and one on-ground spare. Target date for the 2 foot dish receiving system package is sometime in 1990.

FCC has been swamped with firms arguing against allowing satellite system operator COMSAT to merge with independent telephone company operator CONTEL. Merger must pass FCC muster before it can be finalized.

FORD AEROSPACE & Communications has sold its plans and permits to establish a US domestic C plus Ku band satellite network to AT&T. The Ford system would have used Ford designed satellites and would have provided a pair of hybrid birds for domestic lease. AT&T presently has Telstar 301/302 and 303 birds operational but they will run out of fuel within 1992-3 time frame. AT&T had previously been thought to disfavor satellites in favor of fiber optics and was planning to abandon satellite system delivery.

PANAMSAT has received first round of approvals from Intelsat Board to allow it to function as a 'separate', privately owned international satellite service. Still other hurdles remain however.

EUTELSAT lost one of its Ku band transponders because of on-board equipment failure and the user of the transponder, leasing from the German telephone company, was 'bumped'. A replacement bird is not due to launch until 1988. European services now using Eutelsat F1 are nervous about additional transponders being lost. The satellite had 12 transponders originally and others are also experiencing intermittent problems.

IRELAND has granted final approval to a firm 80% owned by Hughes to construct, launch and operate a two-satellite system with 120 watts of power per transponder on 8 channels for DBS service as well as 50 watt per transponder service on 16 additional non-DBS channels. Only one satellite will be initially launched; second will be held on ground as spare. No launch date has been announced.

RUSSIA is attempting to lease out transponder space on Gorizont family satellites to non-Soviet block countries. Most Gorizont birds use only two or three of five potential video tranponders and because of the bird's relatively high power and prime locations (14 west over Atlantic, for example), birds have high commercial potential.

TEST scrambling of United Video feeds for Dallas Indie KTVT and New York indie WPIX could start at anytime. United is ready as soon as their cable affiliates have their commercial VC2 units in place.

FINANCIAL News Network is beaming selected programming to Japan for cable and broadcast distribution. Service is sent to Intelsat uplink in California on F3R, TR4 as part of regular FNN feed and then via Intelsat to Japan's Nihon Keizai Shimbum economic journal.

LOOK for expanded use of Intelsat transponders following board approval of sale of transponders to several nations. Included, Iran has bought trio of spot-beam Ku band channels; Italy has purchased two transponders each 72 MHz wide on 18.5 and 34.5 west birds (Ku band); Norway and African country of Gabon will share single 36 MHz wide C band transponder on 1 west; Portugal has bought 72 MHz wide transponder on Ku band at 53 west; and Niger has purchased 36 MHz wide C band hemi transponder on 1 west.

PSA, public service announcements, will now be fed Saturdays from 10:30-11:30 AM eastern on Westar 4, transponder 24 (6.8 audio) as a television station courtesy by Bonneville Satellite Corporation. Groups wishing to get free distribution of their PSA material should call 801/534-8030. Some restrictions apply.

C. ITOH, owner of DX receiver firm, has acquired a 10% interest in Colorado based Nova-Net firm. Nova specializes in two-way communication systems to private network users.

GI claims there are now 92,000 VC2000 units authorized through its San Diego master uplink authorization center.

NASA has lost use of S band data and voice link system on board TDRS-1 satellite. System quit late in November and directly affects ability of NASA to maintain contact with in-orbit Shuttle craft.

MTV is expanding to Europe to pick up where European bred Music Box left off. The Music Box venture ran out of steam and funds, and MTV with participation from several British firms hopes to relaunch using the basic US created MTV format. No satellite or transponder has been selected. European observers expect 27.5 west and a Ku band half transponder to be pressed into service.

ATS-1, now 20 years old and out of station keeping fuel, continues to provide point-to-point institutional radio communication circuits. The bird presently drifts free over Africa and is under the day-to-day operational guidance of the University of Miami.

SCIENTIFIC-Atlanta will be supplying digital transmissions equipment to national network Westwood One Radio for the new satellite network. Earth terminals will be 9 feet in size.

DAYS INN Of America motel chain is installing Ku band system to use GTE Spacenet satellite with 1.8 meter transmit and receive dishes. Over 500 inn locations are scheduled to be operational by the end of 1987. Days Inn management is also recommending that affiliates contract with the Holiday Inn Hi-Net service for in-room (Ku band delivered) entertainment and educational programming.

YOU can now buy Intelsat transponders in various configurations for 'lifetime' rates which have seldom been lower. A 36 MHz wide C band hemi/zone channel, for example, is going for $2.6M; a reduction of $.8M from the last sale period. Intelsat also offers a C band spot beam transponder, 36 MHz wide at C band, for $4.45M.

US Secret Service is changing from telephone lines to satellite links. Ten sites per month will be installed starting in June with 120 sites planned. System will have redundant 7 meter uplinks in DC area, and be tied to FBI National Crime Information Center. All transmissions will be 'secure'.

COPY of latest FCC study of C and Ku band transponder occupancy is available by calling 202/857-3800.

ARIANE says they **now hope** to begin relaunching of satellites in mid to late March.

PARIS cable television system, now operational before 50,000 homes, may be most modern and complete in Europe. Network offers 15 channels for around $20 (US) per month including all local French networks in addition to BBCI, RAI, Monte-Carlo, Sky Channel, RTL, TV5 and CNN from states.

MAJOR cable and satellite show for Europe, largest and perhaps best planned to date, scheduled March 26-29 at Wembley Exhibition and Conference Center (London). Sponsored by leading European publisher in satellite field, show will set tone for satellite growth in Europe for coming year. Details from (01) 351-3612 (London).

COOP/ Continues from page 5

investments in time and materials topping $50M to create Videocipher. I suspect that if one summed the time and materials spent to **defeat** Videocipher, although almost all of those working on it did so as a 'spare time' activity, it would exceed the M/A-Com number; no matter what that real number happens to be.

So we find ourselves now in a situation where neither side can 'win'. For each descrambling wrinkle uncovered by GI or the programmers, there will be an attempt to defeat it or mess it up. HBO, for example, began testing a system December 17 which forced a large black box 'overlay' onto the screen, controlled by the uplink, effectively blacking out the picture for those units which had been adapted with the Musketeer chips. On those units where the on-screen text was still operational, United Video added text to the large black box on December 19th. People cannot watch television through an on-screen black box. A fellow in the southwest had a hardware fix for this within four hours and another had a software fix within 30 hours. **All** of the **new** Musketeer chips now being distributed contain the software fix to this countermeasure attack thrown up by HBO.

As you might suspect, this round by round battle can go on almost indefinitely. If the on-screen black box was the best that GI could muster in response to the Musketeer chip, their ammunition bin is frightfully depleted.

The people who have been attracted to busting Videocipher are enjoying all of this immensely. Each day, they hope and pray, will bring a new counter measure attempt from GI. They live for the excitement of waking up and finding their doctored descrambler again inoperative or at least glitching. They receive tremendous satisfaction from knowing they are engaging in electronic combat with some unknown but highly paid engineer out there in the GI San Diego 'think tank'. It is the ultimate electronic game of chess and it is being played via satellite. These scramble-busters are having the time of their lives.

One suspects that corporate pressures aside the 'think tank' guys and gals in San Diego are also enjoying the

battle. First of all, they are of the same ilk and breed as the unknown mystery men watching their every move via satellite all across North America. In this particular scenario, they are cast as the 'good guys' (although that of course is a matter of perspective) and they are operating at something of a handicap. By the time they are made aware of a new hardware or software routine being employed by the scramble-busters, weeks have elapsed from the scramble-busting 'breakthrough'. Still more weeks may elapse before the folks at the 'think-tank' actually get their hands on a chip to dissect and analyze. So while the uplink changes may happen with lightning speed, the feedback loop in response to those fast changes may take months or longer. Pity, because that slows 'the game' down.

This is resulting in 'spurts' of activity; first immediately after the introduction of some new uplink wrinkle, and next those weeks thereafter when the 'think-tankers' finally learn how the descramble-designers have been able to get around their latest software wrinkle. However, the game is getting better for the 'think-tankers' because as more and more talented groups become involved in this electronic chess-via-satellite exercise, there are more and more 'matches' going on simultaneously. I suspect that locked away in the San Diego facility of GI there is a 'game/war room' with a board mounted on the wall, detailing the progress of the various matches underway. I also suspect that the think-tankers have assigned names to the various unknown-to-them opponents they are engaging via satellite and one of the interesting sub-challenges is to keep the opponents sorted out on the board.

"I think this routine came from the New Mexico group" suggests a think-tanker as he prepares to post a new wrinkle.

"**Perhaps**, but look at this routine which we first noticed **from the Virginia group**. If what we have here came from New Mexico, then they have started exchanging information with the New Mexico group because the bit routine is identical in this portion", pointing at a 12 bit segment.

That's part of the problem for the think-tankers. Widespread exchange of data is now going on within the descrambling underground. While each of the cell groups out there battling Videocipher remains unique to itself and has its own identity, there has been a growing acceptance that if information and solutions are 'shared', they all benefit. In effect, the solutions worked out by individuals have become 'homogenized' through information exchange.

While much of this information exchange is 'purposeful', some is practiced at a different level. Designers of this or that 'chip solution' now routinely acquire and critique (as in disassemble) the 'language' in other (competitive) chips. In effect, a group in New Mexico acquires a chip from a group in Minnesota and disassembles the device taking the chip apart bit by bit. Sometimes they learn new routines in this way. In effect, for competitive reasons the various chip creation teams are doing the same thing to one another as GI is doing to them all.

By software disassembly, one learns not only **how** a software program routine works, but where the 'holes' in it may be. That's how Clone and Musketeer chips got started; bright people worked their way inside of the U7, U30, U20 and U24 chips of Videocipher and brought out some or all of the software language contained therein. After getting the software out, they next had to understand what it was doing and this eventually led to the writing of new software routines which took advantages of 'software holes' in Videocipher.

The excitement this is creating for the participants aside, all of this activity is very unsettling for the C band industry. Through the various talk and video shows now on satellite, and the publications, it is only a matter of days or even hours between 'break through' and 'national knowledge'. Certainly not every owner of a TVRO tunes in these broadcasts or reads those publications even occasionally. But the mainline dealers do 'stay tuned' and they then become conduits for the information to those hundreds of thousands of TVRO owners (or would be owners) in North America.

Boresight's **Karen Howes**, in their December 17th program suggested that consumers NOT purchase chips. She took this stance for a number of reasons, including the obvious one:

"The technology of chips is changing very rapidly. The countermeasures from GI are adapting to those changes, very rapidly. A consumer purchasing a chip today may find it works tomorrow, **but not the next day**. It is a dangerous purchase".

GI, perhaps more self serving than Boresight's Howes, makes the same point. While no longer insisting that 'Videocipher can**not** be broken', various spokesmen for GI now routinely tell the public '**Many** of the so-called solutions you are being offered, to break Videocipher, are subject to defeat by our uplink control system'. The mysterious 'black box display', put on the screen by HBO on December 17th, may well been an attempt at this. Whether there are additional 'routines' to come will remain to be seen, or heard.

NATIONAL PUBLICITY - For What Purpose?

One of the basic failings of the SPACE effort during the 12 month period mid-'85 to mid-'86 was in the area of public awareness and acceptance of TVRO. There was a plan, at one point, to create a giant (well, sizeable) 'national advertising fund'. Dealers were requested to put varying amounts of cash into the project and in theory these donations would have been matched by the OEMs and distributors. Alas, after a slightly pregnant start and some cash flow, the program ground to a halt when it became apparent that with downward spiraling sales, there was not going to be significant money coming in from the OEMs and distributors. You may remember that a per-unit 'tax' was self-imposed on each system sold through the industry at the OEM and distributor levels.

The concept originated very early in this industry; I remember it being talked about in a public forum at the very first SPACE meeting held at the San Jose (Ca.) show back in July of 1980. First we gather up some bucks. Then we hire a smart PR outfit to spend those dollars in the most intelligent way. The object was to introduce the concept of owning a dish to as many non-dish owners as possible. At this point it becomes a numbers game; what medium, and what message, results in the greatest number of people walking into a TVRO dealer showroom to ask about owning a dish??

At least one private effort to accomplish just this surfaced after SPACE pulled out of the field. Boresight's **Shaun Kenny** created a concept that involves dealers 'purchasing' one or more 'zip code regions'. The idea was basic; put some dollars into a central fund, hire professionals to spend those dollars, and create new store and interest 'traffic' for participating dealers. Boresight has promoted this program on television for several months. There were between 100 and 200 dealers who understood the concept and who sent in their checks. Those checks, I believe, are stored away, uncashed, because until there are enough checks in place to hire those professionals to do what they do best, there is no real program.

Alas, the program languishes; it rests in a holding pattern because too few dealers (distributors, et al) have come on board to make it work, but those who have written checks to purchase 'zip codes' are still hopeful it can be made to work.

Some observations.

1) **Even if** this is the best idea and the best promotion ever conceived by Shaun Kenny, and it is 'perfect' in every respect, **unfortunately** it is a 'Shaun program'. That guarantees it will not be accepted, or supported by a significant chunck of what remains of TVRO. In other words, Shaun is controversial, therefore his program is controversial. Whether it is or is not.

And that's a shame that an intelligent, well thought out attempt to get TVRO 'moving again' is dismantled before it is erected simply because the source of the idea is a controversial person. Alas, that is life.

2) While the program largely depends upon dealers for funding, there has to be **some funding** from distributors and OEMs as well. Look around you; count the number of 'paid ads' for magazine advertising these days in ANY publication for TVRO. Zip, zilch. There are virtually none. You cannot attract **a percentage** of the advertising budget from Odom Antennas when there is NO advertising budget.

And that's a shame that with the nosedive in retail business has come the virtual total elimination of **any advertising efforts** on the part of the OEMs and distributors. There are two schools of thought in advertising; when times are good, you spend lots of bucks advertising because you won't miss the bucks anyhow and they **might** do some good. And when times are bad, you don't spend any bucks on advertising because you never really were convinced those dollars did any good anyhow. We seem to be in that scenario at the moment. And again, that is life.

3) The program conceived by Shaun holds the belief that people out there **will buy TVRO systems** if they can somehow become convinced that owning a TVRO is not a foolish investment. In other words, 'tell people all about those 100+ channels of TV that have not scrambled, as well as explaining that even the scrambled channels ARE available, if you are willing to pay a price for the services.'

I am not sure, in my heart, that is a valid assumption. That people would start buying again if they somehow became convinced that home dish systems remain 'a good deal'.

As an industry, we always wondered why dish sales

took off so well all of a sudden in 1984 and 1985. I think we truly know the answer, now, even if we have been reluctant to admit it in public.

I submit that the public was buying TVROs for two reasons; because owning a dish greatly expanded their entertainment and information horizons, and, because the dish allowed them to watch 'forbidden fruit' which other people were paying money to watch.

If you look back at the sudden drop in dish purchases, and search for a reason why this drop off occurred, you must come to the reasoned conclusion that people stopped purchasing dishes because they had been told that **if they were going to watch** satellite television, **they were going to pay** for the service.

I don't believe, now, that the public was as 'confused' by the scrambling as they were 'turned off' by the scrambling. Stop and think about the first time **you had** satellite TV in your own home. There was a 'natural high' associated with tuning in HBO or Showtime and watching a movie that you knew, down deep, was not intended for your home. We like to say, and believe, that 'people are basically honest'. They are, and were. As long as there was no prohibition against owning a dish and tuning in those signals, **watching HBO was like walking down the street and finding an unmarked money clip filled with $100 bills resting on the curb.**

When the Cable Communications Act of 1984 established a paper mechanism for scrambling and collecting money for services, I think many people who were thinking about buying a TVRO said 'No thank you, I will wait'. That made 1985 a less than great year; some of our first financial failures happened in 1985 (Intersat, Locom, et al). In retrospective, 1985 should have been a million terminal year and as an industry we were ready with supply lines to support that. It did not happen, and I believe that a significant part of the public held off buying a terminal in 1985 because they perceived that one day soon those money clips would no longer be sprinkled along the curbs.

When 1986 dawned and HBO **REALLY DID** scramble, that was the final proof the public needed. In advance of that scrambling, HBO was testing their collection mechanism and if you carefully look at the sales pattern for 1985, sales dwindled off early in many areas almost in cadence to the increase in scrambling hours by HBO and Cinemax.

Sadly, it is now apparent at least to me that this industry had a brief fling in history because **we were giving away money clips all across America**. When we ran out of money, people stopped buying what we had to sell.

The bottom line?

While I admire Shaun's spunk and dedication to TVRO and his perseverance in trying to get a national promotional program off the ground, I must question whether anything short of a return to the 'free money clip era' will really restart TVRO sales. Let me restate why.

The public is far brighter than we give them credit for being. They know that dishes work, that dishes are reliable, that dishes do wondrous things. But unless they, the public, live where local off-air television is poor and where you cannot rent a movie for a night for $.99 at the local **7-11**, why in the world would they plunk down $1495 or $2995 or whatever to own one of these things? **In small numbers**, you can sell some of everything to somebody, some of the time. In large numbers, you can only sell lots of something to lots of people all of the time... when the price is in line with the public's perception of value. The public is now painfully aware that TVRO is no bargain. Even if the hardware happened to be free (now THAT is an interesting marketing concept!), the software will nickel and dime you to death.

With the advantage of hindsight, **everyone** made big mistakes in allowing TVRO to go so far, so fast without controls. That includes **the FCC** who started it all in October of 1979 by simply deciding 'no licenses are required for home dishes' and **the programmers** who lollygagged around for six crucial years before they got their threat of scrambling into operation. That also has to include **those of us** who participated in the creation and sale of TVRO hardware because we allowed the ineptness of the programmers and the legislators to lull us into some false feeling that 'we cannot be stopped'. And that has to include those terribly self-serving **program guides** who somehow, to this day, never seem to find the proper journalistic position to address with honesty and integrity all that was happening in this field.

Through it all, I believe the guides were especially damaging. By 'ignoring' the real events and real underpinnings of the TVRO explosion, they through their combined circulations of ultimately nearly 900,000 allowed the public to perceive that 'all was well' and that 'the public will be protected'. Ultimately, all was not well and the public was not protected at all.

Years and years ago, before most of you were old enough to tune a television set, the television broadcast industry went through a similar period of disarray. And the public got shafted. It happened in this way.

The FCC 'froze the construction of the new TV stations, for nearly five years. The 107 operating stations grew more powerful in that five year period while the FCC tried to sort out a technical mistake they made shortly after World War Two. In assigning operating channels all across the country, the FCC erred and allowed stations to operate on the same channel, or on adjacent channels too close together. This created massive interference between stations. So the FCC stopped allowing new stations to build and begin transmitting while they tried to sort out this seemingly minor league technical problem.

When the solution was finalized, it involved both the then present (12) VHF channels and a new group of (70) UHF channels. With the freeze 'lifted' thousands of applicants applied for licenses. The VHF channels were very valuable because **all of the TV sets** tuned in those 12 channels. The UHF channels were suspect since nobody had a tuner that would tune them in. A handful of manufacturers, such as Regency and RCA and Mallory, promised set-top UHF 'converters' (tuners). An applicant for a new TV station had a choice; he could file for a **VHF channel** in say Milwaukee, or, he could file for a UHF channel. If he filed for a VHF channel, he would be one applicant of perhaps a dozen or more. If he filed for a UHF channel, he might be **the only applicant**. The FCC dealt first with the 'uncontested' applications on hand by a certain cut-off date. If only one applicant filed for UHF channel 25 in Milwaukee,

the FCC promptly granted that license to the applicant; often without an adequate review of the applicant's financial and programming abilities. Some very strange people ended up with UHF construction permits in 1953 and 1954!

Those applying for VHF channels were headed for long, drawn out 'hearings'. Eventually, several years down the road, the FCC would make their decision as to which applicant for VHF channel 6 in Milwaukee would get a license.

So Milwaukee got channel 25, and others in the UHF spectrum. Unfortunately, UHF transmission equipment was brand new. And very expensive. It broke frequently and was very expensive to repair. To complicate matters, people who wanted to watch channel 25 (and the other new Milwaukee **UHF** channels) had to purchase a 'set top converter' and a special UHF antenna and special twinline to attach the antenna to the converter. This averaged $100 per home.

The UHF stations quickly arranged network affiliations because the networks were anxious to have their programs see the widest possible audience. But the networks were playing games; as soon as the FCC sorted through the applications for the VHF channels, and granted licenses to those VHF channels, the networks dropped the UHF affiliates like the plague.

UHF stations were left high and dry; no network affiliations, and in the 50s, no programming. They suffered from poor coverage (those set top converters and extra antennas were ineffective at best), very high operating costs (the UHF transmitters ate up megawatts of electrical power and transmitting tubes like popcorn machines), and no programming. They 'went dark'.

By the end of the 50s, several million UHF set top converters were lying about gathering dust on people's shelves. UHF antennas had fallen down and were not replaced.

I once calculated that in Milwaukee alone, more than $50,000,000 was spent by the consumers to receive UHF television. All of that was lost, totally junked, in a matter of years, Across the full United States, the number was in excess of $1,000,000,000. **And that** was **not** insignificant.

Did Congress do anything about this? Did the FCC do anything about this? Is the moon made of green cheese???

C band television via satellite may turn out to be another of those fiascos. Nobody really did anything when it happened before; I hope to be delightfully surprised to find that somebody does something about it **this time** around. But I doubt it.

Now I know that editorial opinions are supposed to revitalize your spirits, give you new hope for the future, and generally make everything seem well again. I read **Orbit's** editorials ... I get the message.

I also read history, and am fortunate enough to be at the correct age where I not only read history but was there to observe it as it happened. And it is my editorial opinion that unless we can figure out a way to convince the American public that home dishes are a REALLY good thing, **like finding money clips on the curb**, we are going to go the way that all of those Mallory and Regency set-top UHF converters went. Straight into the junk heap.

That's the challenge. Now, who has an answer?

GREEN SHEETS

A MONTHLY trader's forum allowing industry promotion for surplus, outmoded and hard to find equipment.

THIS segment of CSD functions as an international buy/sell/swap and trade forum for equipment related to TVRO, cable, and (low power) broadcasting. **Subscribers** to CSD are allowed one **FREE listing** in Green Sheets per subscription year (forms to submit copy available upon request). Subscribers are also allowed additional listings at a discounted rate of **$25 per listing**. Display advertisers in CSD are allowed unlimited use of Green Sheets at a rate of **$20 per listing**. All others are charged **$35 per listing**; all orders must have payment enclosed, no invoicing or billing (you may **charge your listing** to your VISA or Mastercharge however). All Green Sheets listings are carried for a single month with a 100% 'roll-over' on the 1 st of each month. **Deadlines:** 1 st of month for that (current) month's listings. A 'full' listing consists of **120 letters, numbers and spaces** between words or numbers. Print or type all listings submitted; over-long listings will be rejected or edited by CSD. CSD provides this service without responsibility for the character of the listings and cannot validate the integrity of the listings or listors; Caveat Emptor! **Submit listings to** CSD, P. O. Box 100858, Ft. Lauderdale, FL 33310 **or call in listings** not later than 1st of month to **305/771-0505** between 9AM and 4PM eastern; have VISA or Mastercharge card handy when calling.

ANTENNAS

COST EFFECTIVE DISH GAIN TIPS UP TO 25 DEGREES RECEPTION. "SPARKLIES" DECREASED. $500.00 FIBERGLASS DISH ONLY! NO LOWER K DEGREE LNA

Danex 6' Antenna $99
Danex 7'4" Antenmna $149

Alcoa 6' Antenna w/patio mount $169

Prostar XR-1 Receiver $229

M/A-Com LNB $59

DX 700A Receiver $289

PROSAT 230 Actuator $149

GOLDSTAR TVs-Monitors-VCRs

19" MONITOR/TV $260
25" MONITOR/TV $475
VHS/VCR with Infrared Remote $249
Compact Disc Player $149
VHS Universal Premium Video Tapes $3.49

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1-518-383-2211 (NEW YORK)
1-305-851-4738 (FLORIDA)

OR ENLARGING DISH!! REALLY WORKS!! PAUL LIDDLE,JR 317 KENBROOK DRIVE, GALAX, VA 24333.

SCIENTIFIC ATLANTA 2.8 METER SOLID DISHES WITH POLAR MOUNTS - NEW IN BOXES. $780.00 EACH. MID-ATLANTIC VIDEO, RTE 1, BOX 375, COLONIAL BEACH, VA. 22443. (804) 224 9711.

DESCRAMBLERS

S.A.T. ENGINEERING DOES NOT SELL NOR DO WE INTEND TO SELL ANYTHING CONCERNING VIDEOCIPHER TECHNOLOGY.

RECEIVERS/C[illegible] for VIDEO

BRAND NEW IN BOX REM[illegible] MASTER SATELLITE RECEIVER (ELECTROHOME) MODEL [illegible]. BLOCK, MICRO-PROCESSOR CONTROL W[illegible] REMOTE - $195.00. SATELLITE RECEIVER STS MODEL MBS-SRb $95.00 NEW IN BOX. CHANNEL PLUS UHF MODULATOR A1V - $75.00. INTELSTAR SATELLITE, PO BOX 59, SWARTSWOOD, NJ. 07877. (201) 383 8980.

ELECTR[illegible] COMMERCIAL RECEIVERS WITH BUILT-IN AGILE MODULATORS; THE ULTIMATE SMATV FULLY AGILE SYSTEM WITH HIGH QUALITY VIDEO. BRAND NEW, $850 EACH. (201) 562 0087.

AVCOM 2-A RECEIVERS/THE TOP OF THE LINE CHOICE FOR FRINGE AREA RECEPTION SUCH AS CARIBBEAN. EQUIPPED WITH WIDE/NARROW AUDIO FILTERING, PROSAT ACTUATOR INTERFACE AND POLAROTOR 11 INTERFACE. THIS IS THE BEST HOME RECEIVER FOR CARIBBEAN AND OTHER WEAK SIGNAL AREAS. SPECIAL PRICE OF $399 EACH PLUS YOU RECEIVE BONUS OF AVCOM PSA-35 1 HR VIDEOTAPE TRAINING TAPE EXPLAINING

FULL OPERATION AND USE OF SPECTRUM ANALYZER. THIS $100 TAPE IS YOURS AS A FREE BONUS; LEARN ALL ABOUT SPECTRUM ANALYZERS FREE OF CHARGE! ONLY 10 RECEIVERS AVAILABLE AT THIS PRICE; CHECK OR MONEY ORDER ONLY; (NO INVOICING) AND INSTANT SHIPMENT. SAVE $100 ON THIS SPECIAL PACKAGE PRICE! DIRECT FROM CSD MAGAZINE, PO BOX 100858, FT. LAUDERDALE, FL. 33310. (305) 771 0505.

TEST EQUIPMENT

AVCOM PSA-35A SPECTRUM ANALYZERS IN FACTORY SEALED CARTONS. THESE ARE THE NEW 'A' VERSIONS WITH EXPANDED 2dB PER DIVISION VERTICAL SCALE FOR MAXIMUM SENSITIVITY. IMMEDIATE DELIVERY FROM STOCK, FULL FACTORY WARRANTY. TEN ONLY AVAILABLE; ORDER PRIOR TO SEPT 10th AND RECEIVE AVCOM 2A RECEIVER ($399 VALUE) WITH FULL OPTIONS AS NO CHARGE BONUS. EACH ANALYZER INCLUDES 1 HR TRAINING VIDEOTAPE PREPARED BY COOP (THE SPECIAL UNPURGED 'CAPTAIN MIDNIGHT VERSION' BANNED IN VA!) WITH A RETAIL VALUE OF $100. DIRECT FROM CSD, PO BOX 100858, FT LAUDERDALE, FL. 33310. FULL PRICE $1965 (CHECK OR MONEY ORDER ONLY; NO INVOICING) AND INSTANT SHIPMENT. SAVE $499 ON THIS SPECIAL PACKAGE PRICE!

NO CATEGORY/Too Late To Classify

HELP WANTED! ANYONE KNOWING HOW TO RECEIVE HALF TRANSPONDER (18 MHZ) VIDEO AND AUDIO SUBCARRIERS ON INTELSAT PLEASE WRITE :-
I. THOMSON, BOX 4455, HOUSTON, TX. 77210.

INSURANCE AND PRIVATE PARTY REPAIRS: SPECIALIZED IN REPAIR OF MOUNTS, DISHES AND ADD-ONS. STAM MF6 - (815) 432 5271.

SEEKING EXPERIENCED SATELLITE TECHNICIAN/INSTALLER; AUDIO-VISUAL BACKGROUND HELPFUL. POSITION REQUIRES SOME TRAVEL IN NORTHEAST. CONTACT J. FOLEY, NORTH-EAST SATELLITE SYSTEMS INC, 443 SOUTH STREET, SHREWSBURY, MA. 01545. (617) 842 4328.

HOW TO PLACE A GREEN SHEET LISTING: if you wish to have a product or service listed in the next issue of **CSD Green Sheets**, do the following:

1) Save your mailing label for CSD. You are entitled to one **free** Green Sheet listing per year with your CSD subscription; no charge! Your mailing label is proof of your subscription and it saves Carol time in checking on you.
2) Paste the CSD addressing label on the form here as **proof** of your subscription.
3) Each listing is a maximum of 120 letters, numbers AND spaces (**spaces** are between numbers and letters and words), long. There are dashed lines below which correspond to those 120 letters, numbers and spaces. Fill the form out with your listing, one of 'each' per dashed line (after a little practice you may actually grow to enjoy this!).
4) If you are a subscriber and this is your **first listing** for your current subscription, **send no money.** That's right-just fill it out (with label) and mail in.
5) If you are a subscriber and this is your *second* (etc.) **listing** for the current subscription year, **enclose $25** per listing.
6) If you are a DISPLAY advertiser in CSD currently, your cost is $20 per listing. Enclose payment with listing(s).
7) If you are **not** a CSD subscriber, **shame on you.** For this oversight on your part, enclose **$35 per listing** and may your Vidare dish take on a permanent warp in the shape of a Ruffles potato chip.
8) Mail this form, **your payment**, and anything else you think Coop might like to **CSD Green Sheets, P.O. Box 100858, Ft. Lauderdale, Fl. 33310.** OR. Or, drive Carol bananas by **telephoning 305/771-0505** between 9 AM and 4 PM weekdays eastern time and have your VISA or Mastercharge card handy along with your carefully worded listing.
9) Listings that run beyond 120 letters/numbers/spaces will be edited to size by Alli Lake (aka 'Alli The Ax') and neither Alli nor CSD are responsible, legally, financially, nor morally for how your listing is butchered in the process (avoid butchered listings; count to 120 carefully).

ATTACH CSD MAILING LABEL HERE AS PROOF OF SUBSCRIPTION

CSD SUBSCRIBERS ATTENTION!

YOU ARE ENTITLED TO **ONE FREE** CSD-GREEN-SHEETS LISTING PER-YEAR **AS A CSD SUBSCRIBER.**

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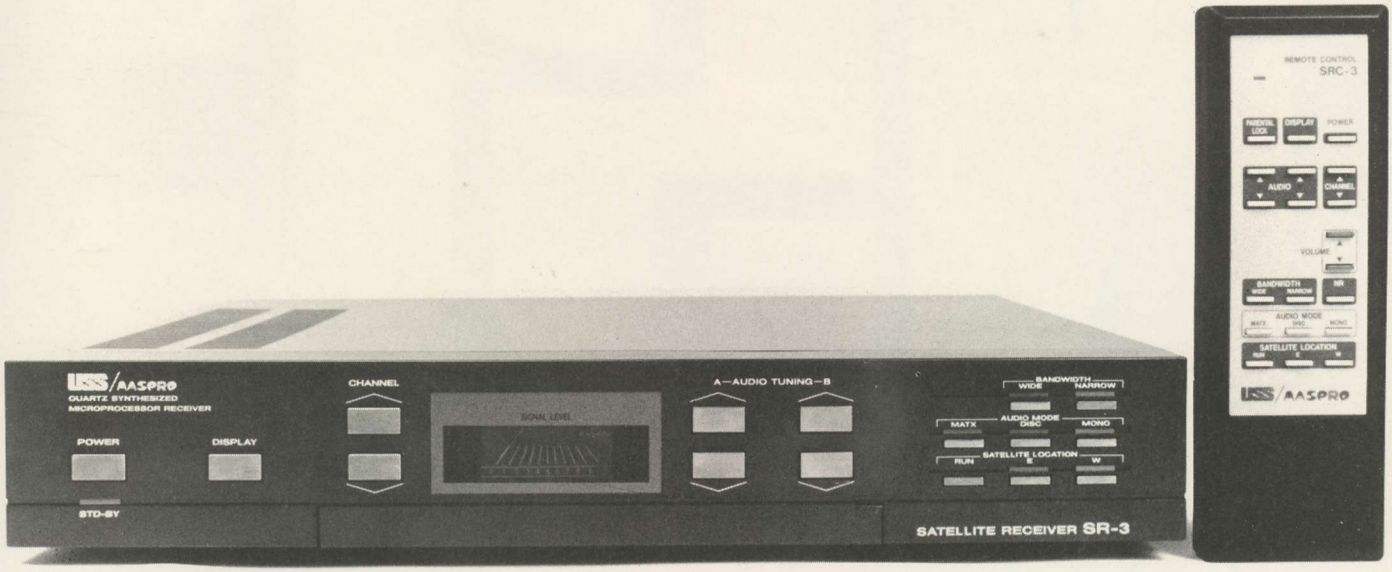
"The Satellite Communication Company"



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NSC

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Basic truths form the foundation of our Nationwide Service Committment. Time and effort have made NSC a national distributor for all major brands of satellite receiving equipment. Quality support to our vast network while keeping the best interests of the consumer at heart, have meant something. Years of uncompromising professionalism helped shape our mutual goals. We constantly strive to be the best and encourage and train our dealer network to do the same.

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(These telephone numbers are for the new Stewart Int'l Airport location)